



**Navigating the integration of practice-based interprofessional
education in healthcare education:
a theoretically infused qualitative case study.**

by

Noreen O'Leary

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Supervised by Dr Nancy Salmon and Dr Amanda Clifford

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Abstract

Background

Practice-based interprofessional education (IPE) enables students to develop collaborative working skills in authentic clinical settings. Integration of this model into healthcare curricula is complex. Research exploring practice-based IPE in allied health professions is sparse, with limited consideration of the role of theory to support sustainability.

Aims

This research aimed to demonstrate the contribution theory can make to the integration of practice-based IPE at a school of allied health.

Method

First a qualitative metasynthesis was conducted, to elucidate the challenges of practice-based IPE in allied health. Second a scoping review was conducted to guide decision-making regarding theories to inform research design. Third a theoretically informed ethnographic case study and model to support theory selection and application was developed. This case study involved two key phases. During phase one the focus was on the experiences of a university practice education team tasked with establishing practice-based IPE. This informed phase two, where participants were students and clinical educators with experience of practice-based IPE. Each phase was theoretically informed.

Findings

Overall PhD findings demonstrate that certain conditions enhance integration of practice-based IPE. These include defined curricular pathways for practice-based IPE and interagency partnerships across healthcare and educational institutions. Research also highlighted that theory is seldom applied to design and evaluation of practice-based IPE.

Discussion

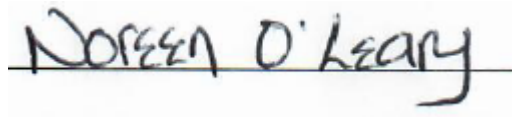
Practice-based IPE is under-theorised. Using a theoretically informed model to develop curricular pathways and interagency partnerships can support nuanced understanding and solutions. Cultivating a practice landscape where educators are supported to implement theory in the design and delivery of practice-based IPE in their everyday practice is recommended.

Conclusions

Theory can advance the aim of integrated and sustainable practice-based IPE. Consequently, students would have greater opportunities to develop collaborative working skills, bolstering workforce readiness. These skills are evermore needed by the people who access healthcare services.

Declaration

My submission as a whole is not substantially the same as any that I have previously made or currently am making, whether in published or unpublished form for a degree, diploma, or similar qualification, at any university or similar institution. I am the author of this thesis and the principal author of the five articles that form its core.

A handwritten signature in black ink that reads "Noreen O'Leary". The signature is written in a cursive style and is positioned above a horizontal line.

Signature:

Noreen O'Leary

Acknowledgements

The mind, once stretched by a new idea, never returns to its original dimensions

~ Ralph Waldo Emerson

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This thesis is dedicated to the memory of Tom Downey[†], who exemplified the values of hard work and lifelong learning.

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List of Publications

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- I. O'Leary, N., Salmon, N., Clifford, A., O'Donoghue, M. and Reeves, S. (2019) “‘Bumping along’: a qualitative metasynthesis of challenges to interprofessional placements’, *Medical Education*, 53(5), 903-915, available: <http://dx.doi.org/10.1111/medu.13891>.
- II. O'Leary, N. and Boland, P. (2020) ‘Organization and system theories in interprofessional research: a scoping review’, *Journal of Interprofessional Care*, 34(1), 11-19, available: <http://dx.doi.org/10.1080/13561820.2019.1632815>
- III. O’Leary, N., Salmon, N. and Clifford, A.M. (2020) ‘The contribution of theory to an ethnographic case study on interprofessional placements in healthcare education’, *International Journal of Social Research Methodology*, available: <http://dx.doi.org/doi: 10.1080/13645579.2020.1756636>
- IV. O'Leary, N., Salmon, N. and Clifford, A. (2020) ‘Inside-out: normalising practice-based IPE’, *Advances in Health Sciences Education*, available: <http://dx.doi.org/ 10.1007/s10459-020-10017-8>
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List of Additional Publications

Invited Commentary

O’Leary, N. and Cantillon, P. (2021) ‘Longitudinal integrated clerkships are OK, but do they prepare students for reality?’, *Medical Education*, available: <http://dx.doi.org/10.1111/medu.14454>

Additional Publications

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O’Donoghue, M., O’Dea, A., O’Leary, N., Kennedy, N., Forbes, J. and Murphy, C.A. (2020) ‘Systematic review of peer-mediated intervention for children with autism who are minimally verbal’ *Review Journal of Autism and Developmental Disorders*, available: <http://dx.doi.org/10.1007/s40489-020-00201-2>

Sy, M., O’Leary, N., Nagraj, S., El-Awaisi, A., O’Carroll, V. and Xyrichis, A. (2020) ‘Doing interprofessional research in the COVID-19 era: a discussion paper’, *Journal of Interprofessional Care*, available: <http://dx.doi.org/10.1080/13561820.2020.1791808>

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List of Abbreviations

CAIPE	Centre for Advancement in Interprofessional Education
CORU	Regulatory body for health and social care professions in Ireland
IPE	Interprofessional education
IPC	Interprofessional collaboration
IPP	Interprofessional placement
NPT	Normalisation Process Theory

Glossary of Key Terms

In 2019 a proposed lexicon of interprofessional terminology was developed by InterprofessionalResearch.Global and Interprofessional.Global¹. Where appropriate these definitions are adopted within this thesis and indicated by use of * symbol

Allied health professionals: umbrella term used to refer to health and social care professionals not including medical, nursing, dental and pharmacy professionals. The exact professions included in this definition differs internationally.

Clinical educator: a qualified healthcare professional responsible for a student's learning during practice education. In some literature this role is referred to a preceptor or practice educator.

Collaborative practice: occurs when two or more medical, healthcare, or social care professions work together, with the aim of improving patient care and outcomes. Also known as interprofessional collaboration (IPC).

***Interprofessional education (IPE):** occasions when members or students of two or more professions learn about, with and from each other, to improve collaboration, and the quality of care and services (Centre for the Advancement of Interprofessional Education, 2019).

Interprofessional curriculum: refers to the programme of interprofessional modules and activities students are required to undertake during their course of study.

***Multidisciplinary:** refers to activities performed by members from different academic disciplines (psychology, sociology, mathematics) who work independently, in parallel or sequentially on different aspects of a project within their disciplinary boundaries. In healthcare settings, this term has historically been used erroneously in place of interprofessional.

Practice education: occurs when healthcare students attend clinical sites to develop clinical and professional competencies. Also referred to as placement.

Practice-based interprofessional education: occurs when students of two or more professions learn about, with and from each other in a clinical or practice setting. This may involve planned or opportunistic learning and direct or indirect patient involvement.

Practice education team: staff employed by the educational institution, with responsibility for coordinating practice education and supporting students and clinical

educators. They may work wholly at the university or between the university and clinical sites

Shared learning: occurs when students learn side by side and are not required to collaborate.

***Uniprofessional:** an activity undertaken by one profession alone.

ⁱ Khalili, H., Gilbert, J., Lising, D., MacMillan, K., Maxwell, B. and Xyrichis, A. (2019) *Proposed lexicon for the interprofessional field. A joint publication by InterprofessionalResearch.Global, & Interprofessional.Global*, available: www.research.interprofessional.global [accessed 1 January 2021]

Chapter 1: Introduction

1.1 Interprofessional education

Interprofessional education (IPE) involves students from two or more healthcare professions learning with, from, and about each other (Centre for the Advancement of Interprofessional Education 2017). It has been identified as enhancing collaborative practice since the 1980's (Harbaugh *et al.* 1987). Therefore, establishing IPE as a core element of pre-qualification curricula has increasingly become a priority for healthcare educators during the 21st century (Steven *et al.* 2017). Precipitating factors include an ageing global population and increasingly complex needs of people accessing healthcare services (Buring *et al.* 2009). Furthermore, international workforce shortages in healthcare necessitate increasingly flexible work practices (Tomblin Murphy *et al.* 2019). Collaborative working also leads to more efficient delivery of healthcare services, improved patient safety, and better quality of care, as well as increased job satisfaction for healthcare staff (Espinoza *et al.* 2018).

1.2 Practice-based IPE

Within healthcare curricula, practice education provides students with opportunities to develop clinical skills in real healthcare settings. Practice-based IPE occurs when students from two or more professions work together at the same clinical site during clinical placements (Morphet *et al.* 2014). Practice-based IPE can help develop positive perceptions of and attitudes to collaborative working (McGettigan and McKendree 2015), as well as prepare students for workplace entry (Ciccone *et al.* 2013). There is growing evidence from new graduates that practice-based IPE is needed for students to translate learning from classroom or simulated IPE into clinical practice, as it enables them to develop collaborative working skills in authentic settings (Gilbert 2014). To contextualise practice-based IPE a brief literature review was conducted, with a focus on the models used, country-level engagement, and professional representation thus far.

1.3 Evolution of practice-based IPE

While IPE has been an educational aim since 1970's (Illingworth and Chelvanayagam 2017), significant momentum was generated when the World Health Organisation (2010) specified IPE as a necessary component of healthcare training programmes. A 2010 cross-sectional online survey of 41 countries indicated that practice-based IPE was not routinely offered as part of IPE curricula (Rodger and Hoffman 2010). However, in the subsequent decades interest in practice-based IPE burgeoned (Brewer *et al.* 2017). A brief overview of key

models is provided in this section, with some of the most frequently reported approaches depicted in Figure 1.1. This is followed by a review of international approaches to practice-based IPE and professional representation.

Practice-based IPE models

Acute hospitals, rehabilitation units, and community-based clinics are among the most common sites for practice-based IPE (Boshoff *et al.* 2020). In the acute setting interprofessional training wards are dedicated spaces where students work in teams to deliver patient care in a supervised setting (Oosterom *et al.* 2019). Student-led clinics typically involve student teams providing community-based input for underserved populations or establishing a new service (Pammett *et al.* 2015). Structured interprofessional placements (IPP) in acute and community settings also exist, where students work together for some or all of their placement in community clinics or on hospital wards (Weller-Newton and Kent 2021). Activities during these placements can involve collaborative patient care and / or project work (Brewer *et al.* 2017). Under the broad umbrella of practice-based IPE, and during uniprofessional placements, students may shadow other professions (Kent *et al.* 2020), engage in interprofessional tutorials where they work together to develop management plans for real or hypothetical patients (Arnold *et al.* 2020), and conduct file reviews to explore the roles and responsibilities of other professions (Brack and Shields 2019).

Model	Activity	Typical sites
Interprofessional training ward	Fully shared caseload involving collaborative treatment of patients with defined needs, e.g. post orthopaedic surgery	Acute hospitals
Student led clinics	Collaborative working to deliver clinical services for under-served patient groups or to develop a health promotion initiative in the community	Community sites; University sites
Structured interprofessional placements	Fully or partially shared caseload involving collaborative assessment and treatment or joint projects to develop resources or interventions	Acute sites; Community sites
Planned or opportunistic IPE as part of a uniprofessional placement	Fully or partially shared caseload involving collaborative assessment and treatment	Range of placement sites

Figure 1.1: Practice-based IPE activities

To differing degrees, these models represent a departure from traditional uniprofessional practice education (Reeves 2008). For instance, the degree of structure and collaboration varies significantly between models. Interprofessional training wards are typically very structured with daily timetables of collaborative student activities. In other hospital and community sites, IPE activities may be more opportunistic or a certain amount of time per week may be set aside for IPE. The level of direct patient interaction, time spent with other students, and consequently learning outcomes or competencies developed vary considerably depending on the model selected. Internationally several interprofessional competency tools exist to map student learning outcomes (Canadian Interprofessional Health Collaborative 2010; O'Keefe *et al.* 2017). At present, there is emerging, but not definitive evidence mapping certain interprofessional competencies onto specific practice-based IPE activities (Kent *et al.* 2017). Sustainability of practice-based IPE is an ongoing challenge, particularly for models that are resource intensive (Nisbet *et al.* 2018). For example, the IPE training ward at a Danish hospital has a dedicated project manager who *'organized, coordinated, documented and evaluated the activities ... [and] was also a consultant for the clinical tutors and was responsible for cooperation and coordination with the professional schools and the university'*. (Jacobsen *et al.* 2009, pp.31-32). While this has supported sustainability of the model it also requires ongoing funding, which is often not accessible for practice-based IPE initiatives (Kent *et al.* 2017).

International trajectory of practice-based IPE

When considering international development, prevailing socio-political contexts warrant attention. For example, in the United Kingdom pre-qualifying IPE was an identified priority for the Labour government who came to power in 1997, providing national momentum and funding for IPE (Barr and Ross 2006). Such cultural and structural supports expedite development of practice-based IPE. The prevailing requirements for professional regulation also inform development of IPE. While many regulators now include references to preparing students for collaborative practice in accreditation standards, explicit requirements for practice-based IPE remain rare (Girard 2021). Denmark is one jurisdiction with explicit requirements for classroom and practice-based IPE for nursing, occupational therapy, and physiotherapy students (Jacobsen *et al.* 2009). The British Nursing and Midwifery Council also specifies that IPE should involve both the academic and practice setting (Thistlethwaite 2012). These contextual factors provide a backdrop against which international practice-based IPE can be considered. A timeline of key developments is provided in Figure 1.2,

followed by a review of international practice-based IPE. This is geographically organised, moving from the southern hemisphere to North America, into mainland Europe and the United Kingdom and concluding in the Republic of Ireland where this research is situated.

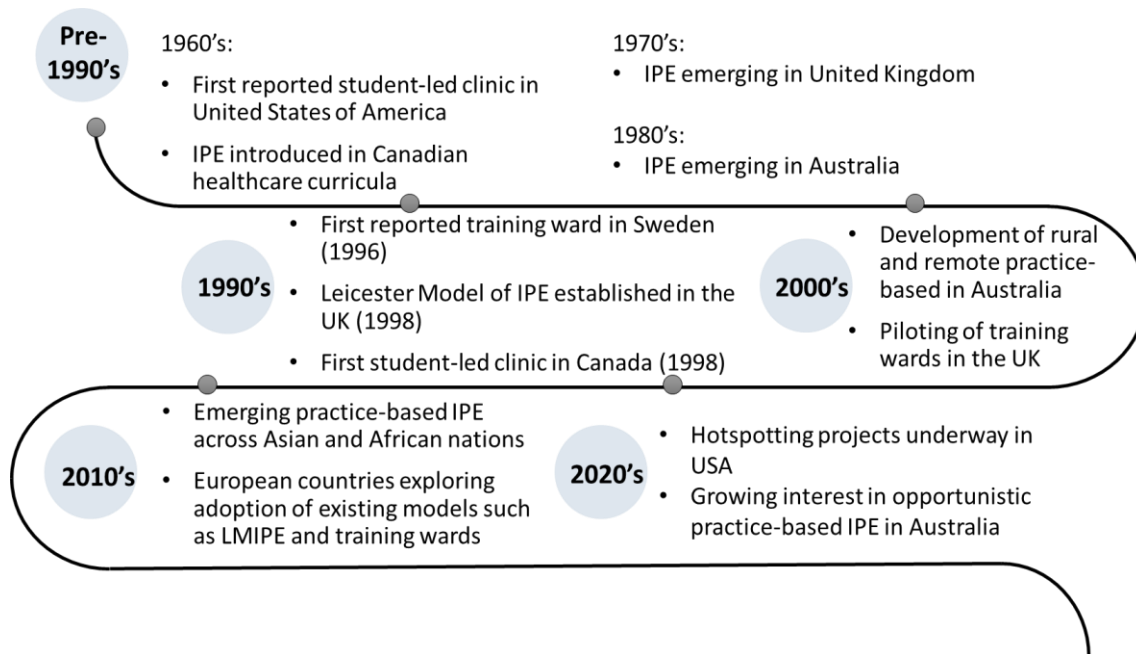


Figure 1.2: Timeline of international practice-based IPE evolution

In the southern hemisphere, rural and remote healthcare is often a priority due to the geographical landscape. This is a fertile setting for practice-based IPE, with a number of rural interprofessional placements established in Australia since the early 2000's (Thackrah and Thompson 2019; Walker *et al.* 2018). Common models of practice-based IPE include student-led clinics or community health promotion projects. There is also growing interest in developing practice-based IPE in community settings using approaches such as observation and shadowing (Kent *et al.* 2020) and harnessing opportunistic interprofessional clinical encounters for learning purposes (Rees *et al.* 2018). A small number of studies from New Zealand also report community-based student-led clinics to address healthcare needs in rural and remote areas (Walker *et al.* 2018). There is also interest in developing University-based student-led clinics to advance practice-based IPE in New Zealand (Friary *et al.* 2018).

Asian countries such as Japan and Indonesia have been making deliberate efforts to develop IPE since the turn of the century, with most reported activity to date based within the classroom setting and some emerging opportunities for practice-based IPE (Barr 2015). In some south-Asian regions, international practice-based IPE has been undertaken. For example, student-led clinics in the Philippines (Walker *et al.* 2018). Supported by grant

funding, allied health students from the University of Queensland worked with Vietnamese children with disabilities over a five-week period (Strong *et al.* 2016). In a number of African countries, such as South Africa, community-based placements in rural and remote areas are being established to meet population needs (Müller 2019). For example, interprofessional student teams from Stellenbosch University worked with parents and local agencies to develop and run an early childhood parenting programme (Snyman and Donald 2019).

Within the United States of America (USA), a range of models have been reported. Student-led clinics have been reported since the 1960's (Holmqvist *et al.* 2012). Recent research indicates this model is continuing and growing in the USA (Huang *et al.* 2021). Structured IPE placements in hospital and community sites have also been reported (Herath *et al.* 2017). 'Hotspotting' whereby interprofessional student teams work with identified patients with complex needs in the community over a six-month period is an emerging model in the USA (Gerolamo *et al.* 2021). Philanthropic funding was recently provided to four institutions across the USA to develop hotspotting (Collins *et al.* 2021). Initial findings indicate positive outcomes in terms of developing collaborative practice skills (Gerolamo *et al.* 2021). Long-term and scalable feasibility of this model remains to be determined.

Canada has a well-established tradition of practice-based IPE. The first Canadian student-led clinic was set up in 1998 and several other institutions have followed suit (Holmqvist *et al.* 2012). The University of British Columbia has a long-running practice-based IPE programme, involving interprofessional student teams completing an immersive rural placement (Charles *et al.* 2010). This placement reflects inter-agency collaboration including university and community stakeholders. Nationally, Health Canada have supported development of IPE. For example, the Interprofessional Education for Collaborative Patient-Centred Practice (IECPCP) project provided significant funding for 28 IPE demonstration projects from 2005-2009 (Gilbert 2008). This facilitated partnerships between academic and practice sites to deliver practice-based IPE in settings such as community rehabilitation and primary care. However, succession planning to sustain these projects in the long-term was variable and many projects have not continued (Born *et al.* 2013).

Among Scandinavian countries such as Sweden and Denmark the training ward model is well-established, having commenced in Sweden in 1996 (Oosterom *et al.* 2019) and demonstrating sustainability within these jurisdictions (Jacobsen *et al.* 2009). However, there is also an awareness of the burgeoning need for collaborative practice within community healthcare. The Karolinska Institute in Sweden recently drew on the UK Leicester Model of

Interprofessional Education (discussed below) and began developing community-based patient home-visits as a model for practice-based IPE (Toth-Pal *et al.* 2020). Recently, German researchers started trialling a training ward at University Hospital Heidelberg, with evaluation plans underway (Mink *et al.* 2019). Practice-based IPE in Italy is at an emergent phase. A cross-sectional survey of over 9,000 Italian nursing students reported that less than 50% experienced practice-based IPE (Palese *et al.* 2019). The authors noted that the local culture pertaining to collaborative practice impacted on student exposure to IPE and recommended regional IPE benchmarking standards be developed. Overall, practice-based IPE outside of Scandinavian countries is at an earlier stage of development.

In the UK, The Leicester Model of Interprofessional Education (LMIPE) has offered practice-based IPE opportunities within the local community since 1998 (Anderson and Lennox 2009). This model involves interprofessional student teams interviewing patients in their homes and developing appropriate management plans (Lennox and Anderson 2007). This model is one of the few examples of a model of practice-based IPE informed by theory, namely constructivist learning theory and adult learning theory (Anderson *et al.* 2016) as well as outlining clear partnership, facilitation, and assessment requirements (Lennox and Anderson 2007). A key element of the LMIPE is that practice-based IPE is situated within a three-strand model for achieving interprofessional competence throughout the course of training programmes (Anderson and Bennett 2020), bridging classroom and practice-based IPE across the curriculum. During the early to mid-2000's efforts were made to introduce Scandinavian-style training wards to the UK (Reeves and Freeth 2002). While positive student learning outcomes were reported, resourcing and infrastructural requirements impeded development and this model has not been sustained in the UK (Reeves 2008).

Turning to the Republic of Ireland, practice-based IPE is at an early stage of development. As compared to other jurisdictions Irish universities have been slow to begin incorporating IPE in healthcare curricula (Cusack and O'Donoghue 2012), with increasing efforts to address this in recent years. Developments have largely stemmed from local or regional projects initiated by those with an interest in IPE. This includes the development of an interprofessional curriculum at the University of Limerick where this doctoral research is situated. Unlike the three-strand model implemented in Leicester, this curriculum does not specify a model of practice-based IPE. While a case-based model of practice-based IPE was reported from this site in 2013, this was a short-term project based on external funding (Cahill *et al.* 2013). Currently there are increasing efforts to develop integrate care programmes within Irish

healthcare (Barry *et al.* 2021), which may translate into greater support for pre-qualification IPE.

Professional representation

Much IPE research to date was informed by the experiences of medical and nursing students. For example, from 35 interprofessional studies involving two professions, 13 involved medicine and nursing, 21 involved medicine or nursing and 1 other profession, and one study did not involve any medicine or nursing students (Abu-Rish *et al.* 2012). In a 2016 BEME review, Reeves *et al.* (2016) found that medicine and nursing are the groups most likely to share IPE experiences. This finding was confirmed in a 2017 review of practice-based IPE (Kent *et al.* 2017). Given their key roles in healthcare delivery and proportional representation within healthcare this is understandable. However, these professions have a particular history in terms of interaction and hierarchy (Grant *et al.* 2016), which may influence interprofessional interactions, both amongst themselves and with other professions. Furthermore, medical and nursing training programmes differ from those of allied health students. Cohort sizes are often larger than in most allied health programmes, which creates IPE challenges in terms of distribution and larger professions not being overly represented compared to smaller professions. In recent years there has been growing international interest in better understanding the practice-based IPE experiences of allied health students. For example Boshoff *et al.* (2020) published a scoping review focused on interprofessional placement experiences of allied health students, noting little scholarship specific to this population to date. To address this knowledge gap, it was timely to situate this research within the sphere of allied health professions. That is not to say that medicine and nursing should be excluded from practice-based IPE with allied health students. That would be counter-productive to the overall aim of improving patient safety and care. However, at this juncture it is useful to explore the phenomenon of practice-based IPE from the allied health perspective. Collaboration with medical and nursing colleagues can then advance, to move forward with models of practice-based IPE which are inclusive of the needs of all professions. As noted by Olson and Bialocerkowski (2014) it cannot be assumed that IPE models developed for nursing and medical students will fully reflect the needs of homogeneous allied health professionals. In choosing to focus on practice-based IPE in allied health, this research contributes to addressing this gap.

As this section has illustrated, practice-based IPE has evolved differently internationally. However, there are some common challenges to implementing practice-based IPE that can be extrapolated, considering relevant cultural and structural factors.

1.4 Practice-based IPE challenges

For students and educators, practice-based IPE represents a critical cultural change to how practice education is delivered (Peduzzi *et al.* 2013). Uniprofessional practice education is an ingrained and well-established model (Barker *et al.* 2005). Practice-based IPE requires a mindset shift among several stakeholders, including students, university faculty, clinical educators, and patients. Concerns regarding the dilution of practice education quality are prevalent, as uniprofessional activity continues to be perceived as the bedrock of practice education (Mpofu *et al.* 2014). Traditional professional hierarchies and relationships also impact engagement with practice-based IPE (Hamada *et al.* 2019), as it requires educators to work more closely with colleagues and educators across professions.

In recent years concerted efforts were made to explicitly draw on theory in practice-based IPE design and research, to address critiques that IPE overall has limited theoretical foundations (Reeves and Hean 2013). For example, educational theories such as adult learning theory and group theory became evident in the literature (Hean *et al.* 2012). Furthermore, organizational and systems theories were identified as valuable for investigating the multi-system factors relevant to practice-based IPE, acknowledging that practice-based IPE is impacted by factors in the wider healthcare and education systems (Kent *et al.* 2016). While theory use overall appears to be increasing, and there are many potential theories to draw on, little is currently known about the pattern of theory use to inform interprofessional learning such as practice-based IPE. This represents a significant limitation as theory can facilitate deep understanding of how and why a new model of practice is (or is not) working, allowing us look into the ‘black box’ of practice-based IPE.

1.5 Research rationale

Given the importance of practice-based IPE in realising the aspiration of collaborative-ready healthcare graduates, the focus of this research was to better understand the process of establishing this model as an integrated component of practice education and generate recommendations to enhance future practice-based IPE. The foregoing paints a picture of a promising and complex model of practice education. At this juncture, developing integrated and in-depth accounts of the practice-based IPE experiences of students and educators was

identified as an avenue through which to advance the development of practice-based IPE. By drawing on these authentic experiences, the ‘black box’ of practice-based IPE could be explored, with subsequent recommendations informed by these findings. To date this type of research has been limited in the sphere of practice-based IPE. While Reeves (2008) did conduct an ethnography of the planning process for a pilot interprofessional training ward, students were not included, and the main focus was on the planning process for one specific project. The focus of this thesis was synthesising key stakeholder perspectives to establish the requirements for integrating practice-based IPE into practice education. In the following sections the conceptual framework informing this research is outlined, alongside relevant researcher and contextual information.

1.6 Researcher’s personal stance within the research

Researcher positionality and thus research decisions are influenced by personal experiences and pre-existing beliefs (Haynes 2012). Articulating these influences supports reflexive research, whereby beliefs and experiences are questioned and re-interpreted as the research evolves (Alvesson and Skoldberg 2018). Therefore, an account of the experiences and beliefs that led me to this research is provided, as these framed my decision making on key research issues such as the conceptual framework of the research.

Prior to commencing this doctoral project, I worked as a paediatric speech and language therapist for seven years, primarily in disability settings. The nature of this work necessitated ongoing interprofessional engagement, although the term interprofessional was rarely used. However, I had an implicit awareness that we were doing more than working alongside each other (multidisciplinary). For example, we planned joint sessions across a number of professions to achieve shared objectives. I had first-hand experience of positive collaborative practice, both in terms of improving patient outcomes and personal work-related satisfaction. I preferred team working to uniprofessional work, I could see my practice was more innovative and creative when working with others. I previously worked briefly in a primary care uniprofessional setting, where collaborative working was logistically difficult and not part of the everyday culture. I found the lack of collaboration with other professions did not align with my philosophy about effective service-delivery. I made some initial efforts to establish informal collaborative networks but against the prevailing backdrop of uniprofessional practice these were not successful.

During 2017 I undertook a Masters in Clinical Education as I was interested in the process of practice education and learning outside traditional classroom settings. My research focused

on the extent to which placement prepared speech and language therapy graduates for clinical practice. A recurring pattern was that they reported feeling unprepared for the level of collaborative practice required with professionals (O'Leary and Cantillon 2020). This was a pattern I also found within the literature from other healthcare graduates. I reflected on my own early experiences, acknowledging I had been fortunate to start my career in a team where collaborative practice was fostered, as it had not formed part of my undergraduate training. I felt disheartened that almost a decade later the situation seemed relatively unchanged.

In July 2017 when the doctoral scholarship for this project was advertised, I was unsure if I wanted to undertake a PhD. I was coming to the end of two years of further education and a PhD had always been a nebulous idea for the distant future. However, I was interested in the topic of IPE and believed this research mattered. I felt my interest in and personal affiliation to the topic would sustain for the duration of the PhD programme and beyond. The scope to conduct qualitative research and explore experiences of IPE appealed to me. I am always interested in understanding how people experience a phenomenon, make sense of it, and how this influences future actions. However, the world cannot be solely understood based on empirical experience. We need to look at context and factors beyond individual control. In my clinical practice I was very comfortable with the evolution of evidence-based practice to weigh not only research evidence and clinical expertise but also patient values and context (Wieten 2018). I could see that research evidence alone was not enough to inform clinical practice. In the research context this translated to a realist worldview, whereby the research questions that interested me were not 'does it work?' but 'who does it work for and in what circumstances?' (Palm and Hochmuth 2020). This realist approach was also influenced by my practice experiences working in the public healthcare system. My agency as an autonomous clinician was curtailed by organisational structures, policies, and cultural expectations. For example, the challenge of collaborative practice in my primary care role where nobody was against collaborative practice, but uniprofessionalism was the established practice. My research philosophy was grounded in a belief that to understand a phenomenon as fully as possible you need to situate it the context in which it is occurring.

These were the most pertinent factors that influenced my decision to apply for the scholarship, and which I brought to the research when I took up the scholarship in September 2017. It was important to remain reflexive throughout the research and reflexive passages are documented in the segues between thesis chapters and in the concluding chapter.

1.7 Conceptual Framework

Ontology

This research is ontologically grounded in critical realism, where subjective experiences are considered, as well as the wider events and contexts in which they occur. Critical realism is largely derived from the work of Bhaskar (2008). Bhaskar proposed a stratified ontology, composed of three distinct layers of reality: the empirical (what we know and experience via our senses), the actual (all events, including those we do not know about) and the real (underlying causal mechanisms that generate events) (Hood 2016). Such an ontology acknowledges a reality beyond the perception of human senses. This differs from positivist ontology, which posits reality can be fully observed and measured; however critical realism does not embrace a fully constructivist position that reality solely exists at an experiential level (Bergman *et al.* 2012). Rather it allows us explain relationships and connections within a system (Dalkin *et al.* 2015). As noted by Derbyshire and Machin (2020) critical realism facilitates consideration of the interaction of culture, structure, and agency within a setting. This ontological perspective aligned with my personal worldview, as outlined earlier. While I value empirical experiences and research based on lived experience, I also believe the world and phenomena can be more fully understood when context is accounted for, taking factors such as culture and structure into account.

Epistemology

Critical realism gives rise to the epistemological stance that knowledge of the world is based on interpretation of an imperfectly perceived reality, accepting there are realities at play beyond our perception (Porter 1993). This is a less relative position than constructivism, where all knowledge is subjective and multiple interpretations of reality are valid (Bunniss and Kelly 2010). Yet unlike positivist or post-positivist perspectives, critical realism does not seek to uncover an objective, value-neutral truth (Porter 2007). Critical realism acknowledges that research can only capture a fraction of the '*deeper and vaster reality*' (Fletcher 2017, p.182). Through robust research underlying causal mechanisms and tendencies for phenomena can be identified, taking into account the complex and multidimensional relationship between cause and effect (Barron 2013). The aim is to develop as accurate as possible an explanation of the phenomenon of interest through consideration of both the individual and the structures within which they experience the phenomenon. Such an

approach is particularly suited to complex phenomena for which there can be multiple and overlapping relationships between causes, effects, and structures (Barron 2011), so-called ‘wicked problems’ which are ‘*socially messy and defy[ing] commonly agreed upon problem statements*’ (Varpio *et al.* 2017, p.357). This definition has resonance with practice-based IPE as it necessitates interaction of clinicians, educators, students, and patients across healthcare and education settings while delivering patient care. Therefore, research relating to practice-based IPE requires an approach that can unpick and explore aspects of this complexity.

Methodology

Ethnography, grounded theory, and phenomenology represent key qualitative research methodologies which were considered for this research (Teherani *et al.* 2015). The position of theory was an important factor in the decision-making process. While engaged in topic familiarisation I became aware of the deliberate efforts in the interprofessional field to develop more robust theoretical underpinnings, which could take the form of generating new theory or applying existing middle-range theories more rigorously (Reeves and Hean 2013). It was through this lens I began considering which methodology would be most suited to this research. For example, when adopting a grounded theory approach, existing theory does not inform the research design and theory generation is a key outcome of the research (Varpio *et al.* 2019), based on comparative data analysis (Green 2014). Operating within an ethnographic or phenomenological approach, existing theories can be incorporated throughout the process and used to frame findings (Reeves *et al.* 2008). Phenomenology particularly prioritises the subjective experience to develop in-depth knowledge of participant lived experiences (Rose *et al.* 1995) and has been applied to interprofessional research (Derbyshire and Machin 2011). Rees and Gatenby (2014) propose that as ethnography aims to reveal the links between subjective experiences of a phenomenon (such as practice-based IPE) and their structural social context, it aligns well with an ontology of critical realism. Dixon-Woods (2003) commented that ethnography is particularly suited to research where measurement is difficult, phenomena are complex, and nuance of interaction is key

Methodological decisions have practical as well as philosophical implications. For example, within grounded theory data collection tools are reviewed and developed based on data generated by initial participants (Cutcliffe 2000). Participants’ relevance to the research question guides order of participation, as data from initial participants inform further sampling and focus of data collection (Derbyshire and Machin 2011). While observation can be undertaken for many qualitative methodologies, it is particularly central for ethnography

which is historically culturally orientated (Reeves *et al.* 2013). Indeed, the in-depth observations and participant engagement which are hallmarks of ethnographic research are well suited when deep engagement in the field of interest is warranted (Barron 2011). In balancing the strengths and limitations of each methodology, I concluded that for this research applying existing middle-range theory throughout would enhance the overall rigour and depth of this research, and that the impact of prevailing culture and structure on participant experiences was important to account for, given the critical realist ontology. As such an ethnographic approach offered the most suitable methodology for this research. Specifically, an ethnographic case study was an approach that aligned with the overarching conceptual framework (Parker-Jenkins 2018).

A case study is defined as '*an empirical enquiry about a contemporary phenomenon (e.g. a case), set within its real world context*' (Yin 2009, p.18). For this project, the case is the School of Allied Health (staff and students), their placement partners (healthcare providers, community organisations) and members of the public receiving healthcare services during placements. A key tenet of critical realism is developing a robust account of observable effects of the phenomenon of interest. Case study research emphasises in-depth exploration, with a view to explaining and understanding why things are as they are and is thus well-suited to research with a critical realism ontology (Easton 2010). Ultimately the design considered most suitable for this research was a theoretically infused ethnographic case study.

1.8 Research context and aims

As the research was grounded in developments at one school of allied health, a brief overview of IPE at the site is provided to contextualise the setting in which the research occurred. This research was situated at the School of Allied Health, University of Limerick, where five allied health programmes are offered across four professions – human nutrition and dietetics, occupational therapy, physiotherapy and speech and language therapy. All students must complete a set number of placement hours during their training, as well as completing academic modules. Placement hours vary across professions, ranging from 450 hours for speech and language therapy to 1,000 hours for human nutrition and dietetics, occupational therapy, physiotherapy. The School was originally set up as a Department of Clinical Therapies, housing three uniprofessional departments.

The School of Allied Health is housed within a faculty of Education and Health Sciences, including a Department of Nursing and Midwifery, School of Medicine and Department of

Psychology. During the period of this research, IPE development has not been intra-faculty at the level of curriculum redesign and module delivery. There were some extra-curricular opportunities for intra-faculty IPE such as the Health Fusion Team Challenge. This involves interprofessional student teams developing a clinical management plan and presenting this plan at a live event, in competition with student teams from other universities (Boyce, 2009). The University of Limerick Interdisciplinary Forum for Healthcare (ULIFH) was a student-led initiative to develop collaborative opportunities across professional groups. ULIFH included students from dietetics, psychology, speech and language therapy, occupational therapy, nursing and midwifery, and medicine. However, as extra-curricular activities these are not integrated aspects of the curriculum accessed by all students. Yet allied health, medical, and nursing students and professionals interact daily to provide patient care on placement. As such, the allied health focus of this research is a limitation. That said, it is important to take a deeper look at allied health student experiences of practice-based IPE as they have not been represented as comprehensively in research to date as professions such as medicine and nursing (Olson and Bialocerkowski 2014). From an ethnographic perspective, my role was to explore the existing practices and culture as deeply as possible, based on what was happening at that time.

A period of departmental restructuring and curriculum review was initiated in the mid 2010's to develop an interprofessional curriculum. To put this in context, IPE has not been systematically included in Irish healthcare curricula (Burke 2016). The School of Allied Health was one of the first Irish universities to explicitly develop a formal IPE curriculum. This involved the development of five IPE modules, covering the following topics: research methods, preparation for practice, engaging through complexity, and innovation in management in health and social care. Figure 1.2 provides an overview of the trajectory of modules at the time of this research. Modules are delivered by academic staff at the university to groups of approximately 120 students. It should be noted that the impact of COVID-19 has led to some changes in module delivery, but overall module content remains the same. Interprofessional modules are mandatory for students across all programmes. Modules are designed for sequential delivery, with students moving from shared learning to interprofessional interactions. For example, in their final semester students enrol in the module 'engaging through complexity', working in interprofessional groups to develop management plans for hypothetical complex cases.

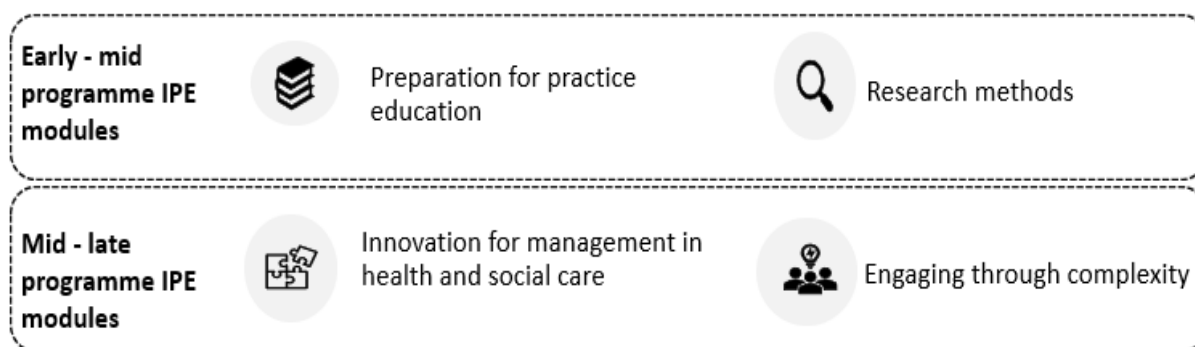


Figure 1.3: Interprofessional education modules

During curriculum redesign, the practice education strand of the curriculum was also reviewed. Placement timetables were reconfigured to maximise opportunities for students to be on placement at the same time and engage in practice-based IPE. A resource manual outlining potential IPE activities during placement and mapping these to profession specific competencies was developed. Members of the practice education team shared this with clinical educators at training events and site visits. A specific model of practice-based IPE was not designated within the curriculum. The context of practice education in Irish allied healthcare is relevant here. Placement requirements for the professions represented in this research expanded significantly between 2001-2003, increasing from 180 to 377 as new training programmes were established at three universities, including this research site (Health Service Executive 2011). Seventy-nine designated practice education roles such as practice tutors were developed to ensure students had the necessary placement opportunities (Health Service Executive 2011). Physiotherapy research in 2014 indicated that placements are occurring more frequently at sites with an onsite practice tutor (McMahon *et al.* 2014). However, as tutor posts were developed unprofessionally, they are often not co-located with tutors from other professions, limiting opportunities for practice-based IPE. Clinical educators other than practice tutors do supervise students and can engage in practice-based IPE. However, culturally practice education is often an optional rather than core aspect of an allied health professional's role. As such securing sufficient placements to ensure students complete the necessary placement hours for professional registration is the primary objective of practice education teams. This was especially challenging in the mid 2010's, as recession related austerity measures had reduced the healthcare workforce (Nolan *et al.* 2015) and thus capacity for healthcare placements. It was against this backdrop that this school were developing practice-based IPE.

By 2017 there was growing interest in developing practice-based IPE as a more integrated aspect of practice education. The School, with support from Adjunct Professor Scott Reeves, thus developed the scholarship awarded to fund doctoral research in this area. At that time there were no designated IPE posts, either for classroom or practice-based IPE. There was a dedicated practice education team, with posts aligned to uniprofessional programmes. This team works with clinical educators at placement sites to coordinate and oversee placements. For example, they offer pre-placement training and site visits during placements. At this stage development the focus was on developing practice-based IPE involving the disciplines within the School of Allied Health, as it was felt these needed to be established prior to developing projects with other departments and schools within or across faculties. The initial focus of this funded doctoral project was an ethnographic analysis of establishing structured IPP within the School of Allied Health. This was informed by familiarisation conversations with practice education staff during my first months at the site. The research focus evolved during the preliminary research phases. It became apparent that attention was shifting to less resource-intensive and more naturally occurring practice-based IPE opportunities. As the research was grounded in a qualitative case study design, it was deemed appropriate and necessary to follow the data in this direction. Emerging literature in the field also confirmed that this shift aligned with international trends, with recent publications indicating a growing interest in a range of innovative practice-based IPE approaches (Rees *et al.* 2018). Supported by research team meetings and discussions, the aims of the project evolved to reflect the research, practice, and contextual priorities. It was in this context that the following research question was formulated: *What conditions are required for sustainable practice-based IPE at a school of allied health?* Specific aims (Table 1.1) were developed to address this research question.

Table 1.1: Research aims and rationale

Aim	Rationale
1. To synthesise current challenges impacting practice-based IPE through a qualitative metasynthesis.	Current literature does not provide a focused synthesis specific to practice-based IPE. By adopting a qualitative approach an in-depth synthesis can be developed which will inform research design in subsequent phases.
2. To profile current theories informing interprofessional projects and research.	This will optimise both the types of theories applied to this research and the way in

	which they are used to inform research design.
3. To design a theoretically informed qualitative case study.	This will ensure that the learning from aim 2 is applied throughout the research design, including development of data collection tools and the analytical strategy and support in-depth exploration of integrating practice-based IPE into healthcare curricula.
4. To generate an account of key stakeholder perspectives on integrating practice-based IPE into healthcare curricula.	Informed by learning from the foregoing and seeking to address current knowledge gaps on integration of practice-based IPE, this will contribute novel findings about what supports and inhibits sustained practice-based IPE. The application of theory will allow for findings to be considered beyond the local site.
5. To propose data and evidence informed recommendations for integrating practice-based IPE into healthcare curricula.	Synthesising findings from this research will allow for development of a suite of recommendations informed by research evidence, stakeholder experiences, and theory.

1.9 Thesis outline

Having identified the research aims and contextualised the research setting, this chapter concludes with an outline of each phase of the research arranged by chapter within the thesis. Figure 1.3 provides a visual representation of the relationship between research aims, highlighting how each aim informed subsequent research phases. Each subsequent chapter commences with a segue referencing the corresponding paper and authorship contributions (where relevant) and outlining the primary contribution of the paper.

Chapter 2 (Paper 1): A qualitative metasynthesis was conducted to garner an overview of the current knowledge base informing practice-based IPE. Limited sustainability and thin theoretical underpinnings were among the key challenges to practice-based IPE.

Chapter 3 (Paper 2): A scoping review of the use of organizational and systems theories (OST) within the interprofessional field was undertaken to generate recommendations for future research, including the research being undertaken as part of this doctoral project. This highlighted potential theories to inform the research, as well guidance for meaningful application of theory.

Chapter 4 (Paper 3): A methodology paper outlining the design of a theoretically informed qualitative case study was developed, which formed the basis for this research. This ensured that theory was aligned to the research paradigm and infused all key phases.

Chapter 5 (Paper 4): Original research reporting on the experiences and perceptions of the university affiliated practice education team, who oversee practice-based IPE. Normalization Process Theory informed this research phase. Collaborative planning, facilitation, and review between university and placement providers is required for sustainable practice-based IPE.

Chapter 6 (Paper 5): Original research documenting the experiences and perceptions of students and clinical educators with experience of practice-based IPE. This phase drew on activity theory and Hofstede's cultural dimensions. Key findings related to the need for practice-based IPE to clearly benefit patient care, be workable for clinical educators and align with educational objectives.

Chapter 7: Discussion with a focus on recommendations for future practice-based IPE, demonstrating the contribution theory can make to advancing integration and sustainability of practice-based IPE.

Chapter 8: Conclusions reflecting on the strengths and limitations of this research, exploring the researcher's proximity to the research site and the nature of the research.

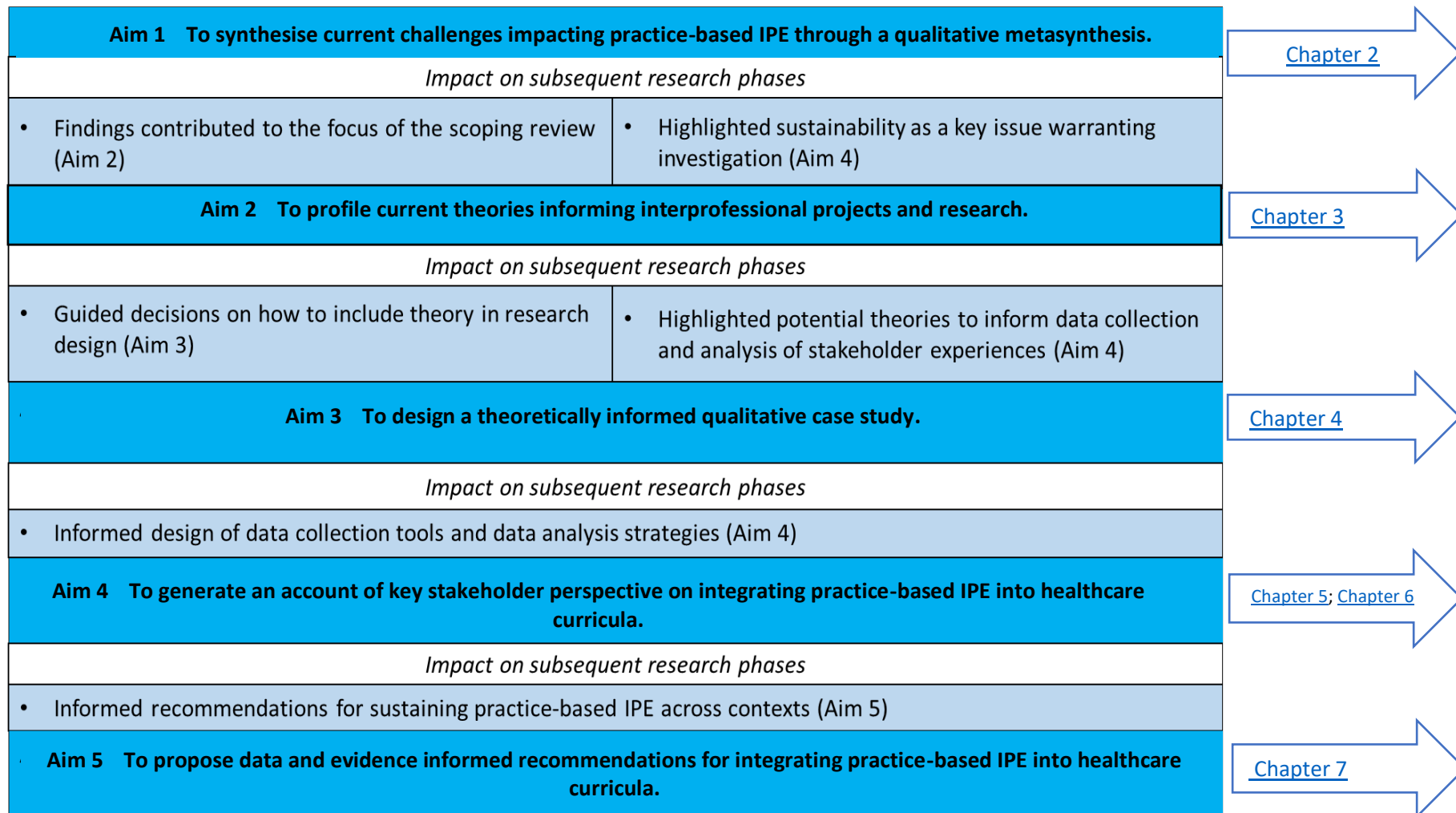


Figure 1.4: Research overview

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Chapter 2: Paper 1

O'Leary, N., Salmon, N., Clifford, A., O'Donoghue, M. and Reeves, S. (2019) “‘Bumping along’: a qualitative metasynthesis of challenges to interprofessional placements’, *Medical Education*, 53(5), 903-915, available: <http://dx.doi.org/10.1111/medu.13891>.

Authorship

Noreen O’Leary led the development of this paper, with primary responsibility for generating the study design and search strategy, conducting the literature screening, quality appraisal, data analysis and thematic synthesis, and writing and editing the manuscript. Nancy Salmon as primary supervisor supported and contributed to all of these stages. Amanda Clifford contributed to development of the study design and search strategy, the processes of data analysis and thematic synthesis, and writing and editing the manuscript. Michelle O’Donoghue contributed to quality appraisal and final editing of the paper. Professor Scott Reeves died during the development of this paper. As his contribution to the initial stages of designing the study and search strategy met authorship criteria, permission to include him as a co-author was provided by his next-of-kin.

Associated aim

Aim 1: To synthesise current challenges impacting practice-based IPE through a qualitative metasynthesis.

Research contribution

This metasynthesis is the first of five papers published as part of this doctoral research. It laid the foundations for the overall research project, by systematically gathering and analysing known challenges for practice-based IPE. Research involving classroom and simulation-based IPE were excluded, as the conditions and experiences of practice-based IPE differ significantly. Qualitative research was specified as an inclusion criterion, as the aim of the metasyntheses was to develop an in-depth understanding of challenges experienced by stakeholders. While quantitative research could identify challenges, more detailed insight was required for this research.

Reflexivity

Reflexivity is a key feature impacting the trustworthiness of qualitative research (Nyirenda *et al.* 2020). Reflexivity requires continuous examination of how the researcher’s beliefs, roles, and interactions influence the research (Barrett *et al.* 2020). Given the qualitative nature of

this research at one site over three years reflexivity was an important aspect of this research project. Therefore, in addition to discussing reflexivity in the introductory and conclusion chapters, each introduction to the papers contributing to this thesis contains a brief reflexive overview. This provides an insight into the evolution of the research and researcher during this project. Reflexivity sections are written in the first person to reflect the personal information drawn on.

At the time of developing this paper, the focus of the research was on developing structured IPP, with the School exploring this as a likely avenue for delivering IPE during placements. In subsequent papers the broader term practice-based IPE is used, as this emerged as the direction in which IPE during placement was moving. The original terminology was retained in the paper within this thesis to transparently reflect the conceptual evolution experienced during this research.

The information gathered during the introductory literature review informed my decision to exclude research which reported on practice-based IPE with only medical and nursing students, as the focus on this research was to contribute to the research base on allied health practice-based IPE. Therefore, it was appropriate to include research where allied health students were learning with medicine and nursing students.

As a relative newcomer to the world of IPE, the process of developing this paper helped me to understand the broad landscape of practice-based IPE and put activities at the research site into the broader context. This included development of a complex and evolving internal categorisation system for IPE activity during placements, as there was such variance in description between studies. The process of distilling the key findings of 41 papers into a coherent synthesis further challenged me to hone my own understanding of core concepts relating to practice-based IPE and this research.

2.1 Abstract

Context

Interprofessional practice is required to manage complex healthcare needs globally. It is well-established that interprofessional placements (IPP) prepare students to work collaboratively, yet IPP implementation remains limited and disjointed.

Objectives

This review synthesised key stakeholders' perspectives in order to better understand challenges of IPP and provide recommendations for sustainable IPP implementation.

Methods

A systematic metasynthesis of qualitative literature sourced from databases including CINAHL, Embase, and PsycINFO was completed. Studies that incorporated student, educator, and/or service-user perspectives on IPP experiences were included. We focused specifically on factors limiting implementation of IPP. The presage-process-product theory provided the theoretical framework for inductive synthesis of 41 empirical studies. A confidence rating for findings was formulated using CERQual (confidence in evidence from reviews of qualitative research).

Findings

We developed three themes which represent key challenges to IPP becoming embedded in placement culture: (i) thin theoretical foundations underpinned IPP, limiting understanding of the learning processes involved; (ii) implementation relied heavily on individual champions, which curtails investment and sustainability when personnel change, and (iii) students, educators, and service users were unsure of the function of IPP and their respective roles, leading to uncertainty along with some negative perceptions of this placement approach.

Conclusions

In line with the presage-process-product theoretical framework, IPP would benefit from explicit connections with educational and change management theories at the presage period. During the process stage, IPP requires coordinated leadership and resource investment. Within the product stage clear integration of interprofessional learning outcomes in curricula is advised. Addressing the identified challenges across the stages of IPP will support further development of IPP, firmly establishing this approach within placement culture. IPP can then

make a significant contribution to the development of a collaborative practice-ready workforce. This in turn will enhance service-user outcomes and safety.

2.2 Introduction

Healthcare systems are in a state of crisis, perpetuated by workforce shortages, increasingly complex healthcare needs, and spiralling costs (Patel and Reeves 2018). The World Health Organization (2010) recommend interprofessional practice as a means to address this crisis, which places an onus on educational institutions to extend interprofessional education (IPE) within healthcare degree programmes (Kent *et al.* 2017). A core aspect of IPE is interprofessional placements (IPP), whereby students from two or more professions work together to deliver client services at clinical sites (Morphet *et al.* 2014). Placement hours can represent almost half of overall hours in healthcare degree programmes (Keighley 2009); thus, they are key in shaping future practice. As IPP is situated in clinical settings, students apply learning from classroom-based IPE by working as an integrated interprofessional team (Centre for Advancement in Interprofessional Education 2017). This translation of theory to practice optimally prepares students for interprofessional practice (Walker *et al.* 2018).

Published studies on IPP over the past 20 years (Dando *et al.* 2012) illustrated IPP benefits including improved service-user outcomes (Shiyanbola *et al.* 2014) and better student attitudes to interprofessional practice (Seaman *et al.* 2018). Given the potential of IPP, the Centre for Advancement in Interprofessional Education (2017) recommended students have at least one IPP during their healthcare degree programme. Despite the benefits, IPP implementation remains limited and disjointed (Herath *et al.* 2017). There are a range of potential reasons for this. Firstly, IPP is more logistically complex than uniprofessional placements as it involves students from at least two different professional programmes (Nisbet *et al.* 2016). Secondly, the need to provide supervision at both a uniprofessional and interprofessional level during IPP increases demands on educators (Grace and Morgan 2015). Thirdly, IPP occurs in the context of dynamic clinical sites which require additional risk management (Cooper *et al.* 2010), balancing innovative student learning opportunities with service-user needs (Rowe *et al.* 2012). These challenges are exacerbated by difficulty securing clinical placements, as reported internationally (Currens 2003). Consequently, it is unsurprising that seminal authors have reported that IPP initiatives are often short-term and not maintained over time (Reeves *et al.* 2016; Kent *et al.* 2017).

Against this backdrop, a mismatch between research and practice is emerging. A recent meta-analysis of 12 quantitative studies identified a positive and statistically significant impact of interprofessional education, including IPP (Guraya and Barr 2018). However, the authors highlighted implementation challenges and the need to better understand interprofessional

learning processes (Guraya and Barr 2018). Currently, the implementation of interprofessional education models in practice appears undermined by low prioritisation in already pressurised healthcare and education settings (Patel and Reeves 2018). Existing interprofessional reviews such as Reeves *et al.* (2016), Kent *et al.* (2017) and Walker *et al.* (2018), while of high quality, have not focused specifically on how IPP is implemented. Qualitative studies focus on how experiences unfold, taking into account the perspectives of the many stakeholders (in this case students, educators, and service-users¹) to provide a comprehensive account of IPP challenges experienced (Yin 2011). Therefore, a review and synthesis of existing research regarding IPP experiences may yield valuable information about challenges to implementing and sustaining IPP. Thus, the aim of this review is to:

1. Synthesise key stakeholders' perspectives in order to better understand challenges associated with implementing and maintaining IPP.
2. Develop recommendations to support IPP as a placement model, informed by stakeholder perspectives in the qualitative literature.

¹ Members of the public who are involved in IPP as they access healthcare

2.3 Method

A qualitative metasynthesis methodology was employed (Finlayson and Dixon 2008), which involved systematically gathering and appraising relevant qualitative literature followed by completing an integrated synthesis (Lachal *et al.* 2017). This process was guided by the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) statement (Tong *et al.* 2012) ([Appendix 1](#)). The review protocol was registered with PROSPERO (registration number CRD42018090640). To support transferability across IPP contexts, findings are structured in the presage-process-product (3P) theoretical framework (Biggs 1993). The 3P theory attends to educational phenomena (Reeves and Hean 2013) and the broader organizational context where learning occurs (Suter *et al.* 2013). This theory is particularly applicable to IPP as it takes account of the stages from planning (presage), conducting (process) and evaluating (product) (Anderson *et al.* 2016). This theory featured in previous interprofessional reviews (Hammick *et al.* 2007; Reeves *et al.* 2016) and its use in this synthesis adds to the burgeoning body of IPP research applying organizational theories to educational research.

Search strategy

A comprehensive search string was devised with the subject librarian to maximise search comprehensiveness ([Appendix 2](#)) (Booth 2016). The focus of this review was on participant experiences; therefore, qualitative research and qualitative data from mixed methods studies were included. Qualitative data in the form of open-ended questions from surveys, questionnaires, or written reflections was not included if this was the only means by which qualitative data was gathered. This reflects the centrality of dialogue and interaction between researchers and participants to qualitative research (Suzuki *et al.* 2007). Further details of exclusion/inclusion criteria are found in [Appendix 2](#).

Screening and quality appraisal

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used to report results of screening and full-text review (Figure 2.1) (Moher *et al.* 2009). Titles and abstracts of 307 papers were independently screened by two authors (NS=307, NOL=307). Authors were therefore ‘blind’ to the other’s decision until completion, enhancing robustness of this process (Ouzzani *et al.* 2016). Following subsequent discussion, 41 papers were included in this review. The qualitative checklist of the Critical Appraisal Skills Programme (CASP) (Critical Appraisal Skills Programme 2018) was used for

independent quality appraisal (NOL=41, MOD=22, NS=19). The CASP checklist does not return a numeric ranking. Studies were assigned a rating of low/moderate/high based on agreement of at least two authors. Studies were ranked according to methodological quality, with particular attention paid to data collection, analysis, and interpretation. Two research team members discussed and reached agreement on final quality rating of each study. To integrate existing evidence, while acknowledging the quality appraisal (Lisy 2015), initial synthesis of findings was based on the high-quality studies (n=16). Subsequently, findings from moderate (n=13) and then low-quality studies (n=12) were incorporated.

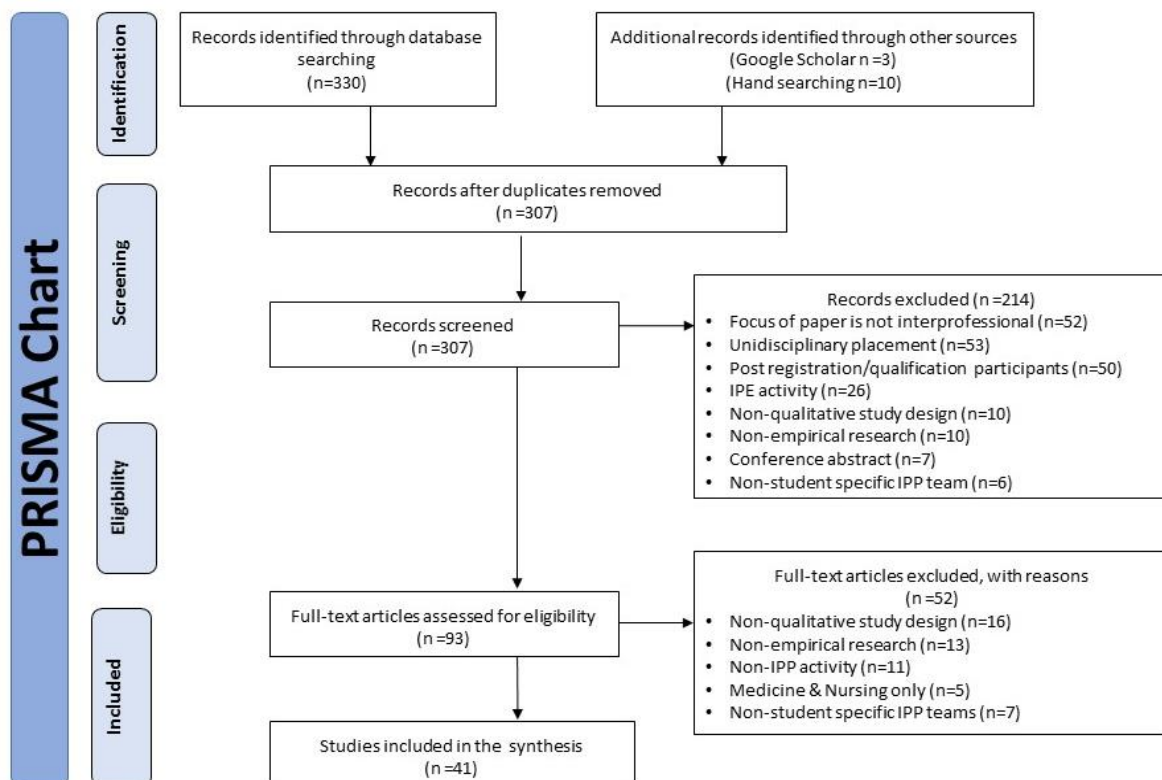


Figure 2.1: PRISMA Flowchart

Data extraction and synthesis

A data extraction template was developed to document relevant contextual information (setting, participants, and activities), research design, and key findings. Studies were imported into NVivo 12.0, then coded using the three-stage process of thematic synthesis: line by line coding, organization into descriptive themes, and development of analytical themes (Thomas and Harden 2008). To increase coding framework, credibility five high quality articles were blind coded by the first and second authors. The findings sections were coded first according to the stages of 3P theory- presage, process, and product. Further descriptive codes were developed inductively based on the findings within each paper, for

example ‘learning preferences’ and ‘collaboration’. Coding for the type of stakeholder and profession enabled nuanced queries to be run within the software during the analytical process. Resultant descriptive code lists were compared and, following discussion guided by the 3P theory, the initial coding framework was agreed by three authors (NOL, NS, AC). This framework guided analysis of the remaining 36 articles, with additional codes incorporated as new concepts were identified ([Appendix 3](#)). These codes were merged into descriptive categories. Subsequent development of analytical themes determined the key messages of the synthesis (Bazeley 2009). Analytical themes are discussed using the structure of the 3P theory. Three authors (NOL, NS, AC) were involved at this subjective stage to limit interpretation bias (Greenhalgh *et al.* 2018). The Grading of Recommendations, Assessment, Development and Evaluation - Confidence in the Evidence from Reviews of Qualitative research (GRADE-CERQual) tool was used to make an assessment of the overall confidence for findings underpinning each theme (Lewin *et al.* 2018). We have reported on the confidence for each finding in the findings section.

2.4 Findings

Overview

41 studies were included in the final synthesis. Tables 2.1 to 2.3 summarise study characteristics with 16 papers deemed high quality, 13 moderate quality, and 12 low quality. Methodological limitations such as poor reporting of researcher-participant relationships and limited information about data analysis were primary reasons for low quality designation. Most studies were conducted in Australia (n=13) and the United Kingdom (n=10). Placement sites were highly variable, spanning specially established training wards to rural community clinics. Two weeks (10 days) was the most common IPP length (n=8), with a range from one to 24 weeks. There were varying levels of interprofessional overlap as often some student groups were not present for all of the placement. The balance of uniprofessional and interprofessional activity during the placement also varied between placement sites. Medicine, nursing, physiotherapy, and occupational therapy were the most commonly represented professions. The perspectives of students and clinical educators at placement sites were those most typically included in studies. Fourteen studies referred to IPP that were pilot or one-off IPP projects (Anderson and Thorpe 2010; Chipchase *et al.* 2012; Ciccone *et al.* 2013; Fortungo *et al.* 2013; Freeth *et al.* 2001; Gum *et al.* 2013; Jakobsen and Hansen 2014; Koskinen and Äijö 2013; Morphet *et al.* 2014; Reeves, 2000; Reeves 2008; Reeves *et al.* 2002; Richardson *et al.* 2010; Strong *et al.* 2014). At the time of data collection three projects had run for one year (Kent *et al.* 2014; Lyons *et al.* 2013; Thackrah *et al.* 2017), six for two years (Craig *et al.* 2016; Friary *et al.* 2018; Kinnair *et al.* 2012; Pelham *et al.* 2016; Salm *et al.* 2010; Seaman *et al.* 2015) and five for three years (Jakobsen *et al.* 2009; Jakobsen *et al.* 2010; Lidskog *et al.* 2009; McGettigan and McKendree 2015; Nicol and Forman 2014). We could not identify IPP running for longer than 3 years within included studies; however, duration for which IPP had been running was not reported in nine papers (Anderson *et al.* 2010; Brewer *et al.* 2017; Carlson *et al.* 2011; Charles *et al.* 2008; Charles *et al.* 2011; Gudmundsen *et al.* 2019; Lidskog *et al.* 2008; Mpofu *et al.* 2014; Yang *et al.* 2017). Four papers referred to general IPP experiences of educators and students (Drolet *et al.* 2011; Marshall and Gordon 2010; Missen *et al.* 2012; Williamson *et al.* 2011). Data was typically collected during or soon after IPP completion. Three out of 41 studies included follow-up after 12 months (Ciccone *et al.* 2013; Craig *et al.* 2016; Thackrah *et al.* 2017).

Table 2.1: Summary of high-quality study characteristics

Citation	3P features	Participants	Placement Setting	IPP Length	Data Collection
Carlson <i>et al.</i> (2011)	Process	12 educators	Acute urban hospital-training ward	2 weeks	Focus group, individual interview, participant observation
Chipchase <i>et al.</i> (2012)	Presage & process	8 students: 2 OT, 2 PT, 2 SLT, 2 Med; 4 educators: OT, SLT, PT	Orphanages and schools for children with disabilities	5 weeks	Focus group, individual interview
Fortugno <i>et al.</i> (2013)	Process & product	3 students: 1 NU, 1 CY, 1 NT; 2 Educators: secondary school teachers; 40 secondary school students who were involved in IPP	Urban secondary school	32 days [1 day per week x 8 months]	Focus group, reflective log
Friary <i>et al.</i> (2018)	Process, product	14 students: 6 SLT, 8 PT; 2 educators; service users: 5	University based clinic	14 weeks	Focus group, individual interview
Gudmundsen <i>et al.</i> (2018)	Process	32 students: 9 Med, 9 U, 8 OT, 6 PT	Geriatric rehabilitation ward, intermediate acute ward, nursing home, and community health service	2 weeks	Participant observation, informal conversations
Jacobsen <i>et al.</i> (2009)	Process	8 students: 2 OT, 2 PT, 2 NU 2 Med; 2 educators; 4 site staff; 1 PhD student observer; 1 project manager	Acute urban hospital-training ward	2 weeks	Focus group, individual interview
Lidskog <i>et al.</i> (2008)	Product	16 students: 6 OT 6 NU, 4 SW	Acute urban hospital-training ward	3 weeks	Individual interview
Lidskog <i>et al.</i> (2009)	Process	68 students: 22 OT 39 nursing, 7 SW	Acute urban hospital-training ward	3 weeks	Individual interview,

Citation	3P features	Participants	Placement Setting	IPP Length	Data Collection
					participant observation, reflective log
Missen <i>et al.</i> (2012)	Presage	57 educators: 3 OT, 5 PT, 3 SLT, 8 Med, 15 NU, 3 SW, 2 DT, 1 Psy, 1 MHNU, 2 RD, 4 PH, 3 DL, 3 PD, 2 MI, 2 PA	Acute rural hospital	Not specified; not reporting on specific IPP but aggregated experiences	Focus group, individual interview, questionnaire
Morphet <i>et al.</i> (2014)	Process	36 students (# unspecified Med, NU, other health care students)	Acute urban hospital-training ward	2 weeks	Focus group
Pelham <i>et al.</i> (2016)	Presage	16 educators: 2 OT, 3 NU, 4 PH, 2 DL, 1 PT, 1 Med, 1 DT, 1 Health promoter, 1 Manager	Rural community healthcare	5 weeks	Individual interview
Reeves (2000)	Presage, process & product	36 students: unspecified # of Med, NU and DL; 15 educators; service users: 10	Urban community placement	2 weeks	Focus group, individual interview, participant observation
Reeves <i>et al.</i> (2002)	Process	36 students: 6 OT, 6 PT, 12 Med, 12 NU; 8 educators; 1 ward staff;	Acute urban hospital-training ward	2 weeks	Focus group, individual interview, participant observation
Reeves (2008)	Presage	20 educators	Acute urban hospital-training ward	4 weeks	Individual interview, participant observation
Thackrah <i>et al.</i> (2017)	Process & product	12 students: 4 OT, 4 SLT, 2 SW, 1 EP, 1 GHS	Rural community placement	2-5 weeks	Individual interview
Yang <i>et al.</i> (2017)	Presage, process & product	8 students: 4 OT, 4 SLT	Rural school placement	6-8 weeks	Individual interview

Table 2.2: Summary of moderate quality study characteristics

Citation	3P features	Participants	Placement Setting	IPP Length	Data Collection
Brewer <i>et al.</i> (2017)	Presage, process, & product	38 students: 12 OT, 10 SLT, 7 PT, 4 DT, 3 NU, 1 PH, 1 Psy	Two primary schools and an aged care facility	1 to 12 weeks (profession dependent)	Focus group
Freeth <i>et al.</i> (2001)	Process	36 students: # unspecified Med, NU, PT, OT; 10 educators; 13 site staff	Acute urban hospital-training ward.	2 weeks	Focus group, individual interview, participant observation, questionnaire
Gum <i>et al.</i> (2013)	Product	5 students: # unspecified of DT & PM	Rural community placement	12-24 weeks	Focus group, reflective log
Jakobsen <i>et al.</i> (2010)	Process & product	Students: 22 Med	Acute urban hospital-training ward.	2-9 days	Interview
Jakobsen and Hansen (2014)	Presage & process	17 students: 4 OT, 7 PT, 6 NU; 8 educators: 2 PT 2 OT 4 NU; 3 managers (1 x PT, OT & NU)	Acute urban hospital ward	1 week	Focus group
Kent <i>et al.</i> (2014)	Process & product	46 students: # unspecified of DT, Med, NU, OT, PH, PT, PD, SW, and SLT; 12 educators	Student clinic within a public health community rehabilitation centre	2 days (spread over 4 ½ days]	Focus group
Koskinen and Äijö (2013)	Process	42 students: 2 OT, 2 PT, 2 NU, 13 BA, 9 DL 12 EC, 2 MW	University based clinic	1-8 weeks	Focus group
Marshall and Gordon (2010)	Process	38 students: 2 OT, 4 PT, 7 Med, 22 NU, 3 SW; 22 educators: 3 Med, 8 NU; 5 SW, 2 OT 1 PM, 1 DT; 2 NHS Trust executive	NHS areas used as pilot sites	Not specified- reporting on aggregated experiences	Individual interview

Citation	3P features	Participants	Placement Setting	IPP Length	Data Collection
Nicol and Forman (2014)	Process	7 students (professions unspecified); 12 university staff, 4 IPE site principals, 10 site staff	Two aged-care residential facilities and one school	3 days to 11 weeks	Individual interview
Richardson <i>et al.</i> (2010)	Presage & process	15 students: 7 PT, 8 OT; 18 educators	Role-emerging placement at two multidisciplinary clinics, a site providing health support to people using shelters, and an agency providing community osteoporosis programs	Unspecified	Focus group, reflective log
Strong <i>et al.</i> (2016)	Process	8 students: 2 OT, 2PT, 2 SLT, 2 Med	School for children with disabilities and two orphanages	5 weeks	Individual interview
Salm <i>et al.</i> (2010)	Product	41 students (# Unspecified Ed, NU, JS, KHS and SW); Educators: # unspecified educators; site staff: # unspecified	Two inner-city, elementary schools. One alternative school	14 weeks	Individual interview, participant observation, reflective log
Williamson <i>et al.</i> (2011)	Process	41 students (# unspecified of MW, DT, PD, OT, NU); 8 educators	Not specified	Not specified	Focus group, individual (telephone) interview

Table 2.3: Summary of low-quality study characteristics

Citation	3P features	Participants	Placement Setting	IPP Length	Data Collection
Anderson <i>et al.</i> (2010)	Process & product	43 students: Med & SW mixed; 16 service-users	Community disability services	4 weeks	Focus group, individual interview
Anderson and Thorpe (2010)	Process & product	100 students: 9 SLT, 50 Med, 26 NU, 15 SW	Acute hospital ward	1 week	Focus group
Charles <i>et al.</i> (2008)	Presage & product	150 students (unspecified professions involved)	Rural community placement	Not specified	Individual interview

Citation	3P features	Participants	Placement Setting	IPP Length	Data Collection
Charles <i>et al.</i> (2011)	Presage, process, & product	14 students: SW	Rural community healthcare	6 weeks.	Individual interview, questionnaire
Ciccone <i>et al.</i> (2013)	Process & product	2 students: 1 SLT, 1 Psy; 3 educators, 2 SLT, 1 Psy	Role emerging placement at a correctional facility.	1 day per week over 20 weeks to co-facilitate a 90 min. group	Focus group, individual interview
Craig <i>et al.</i> (2016)	Product	23 students (professions unspecified); 57 educators	Rural community placement	4-6 weeks	individual (telephone) interview
Drolet <i>et al.</i> (2011)	Presage	14 educators	N/A	N/A	Focus group
Kinnair <i>et al.</i> (2012)	Process	11 students: 6 Med, 5 SW; 6 educators; 6 service-users; 1 carer	Community mental health services	3 days	Focus group, individual interview, questionnaire
Lyons <i>et al.</i> (2013)	Process & product	48 students: 21 Med, 19 NU, 8 PM; 2 educators: 1 Med, 1 NU	Acute urban hospital ward-colorectal surgery service	3 sessions [averaged total of sessions (17) by total number of students, (48)]	Individual interview, participant observation
McGettigan and McKendree (2015)	Product	Educators: # unspecified of Med, NU, PT, OT	Acute urban hospital-training ward	2 weeks	Focus group
Mpofu <i>et al.</i> (2014)	Process	17 students: 3 PT, 10 Med, 4 NU	Rural community placement	5 months	Focus group
Seaman <i>et al.</i> (2015)	Process & product	11 site staff; 12 service-users; 4 family/carers	Residential elderly care facility	2-6 weeks	Focus group, individual interview

Abbreviations for Tables 2.1-2.3: #=number; BA=bio-analytics; CY=Child & Youth; DL=dental; DT=dietitian; EC=emergency care; EP=exercise physiology; GHS=general health sciences; JS=Justice Studies; KHS=Kinesiology & Health Studies; Med=medicine; MHNU: mental health nursing; MI=Medical Imaging; MW= midwifery; NHS=National Health Service; NT=nutrition; NU=nursing; OT=occupational

therapy; PA=pathology; PH=pharmacy; PM=paramedic; PT=physiotherapy; Psy=psychology; SLT=speech & language therapy; SW=social work.

Synthesis

We explored the experiences of key stakeholders to better understand the challenges of implementing and sustaining IPP as a placement model. Based on a thematic synthesis of 41 studies, we developed three key themes to represent key challenges to IPP and how these can be mitigated: building theoretical foundations, layering leadership, and negotiating new realities (Figure 2.2). The process of thematic synthesis is summarised in [Appendix 4](#). Using the CERQual tool we established the level of confidence in each of the eight findings contributing to the final themes. There was a high level of confidence in six findings and a moderate level of confidence in two findings ([Appendix 5](#)).

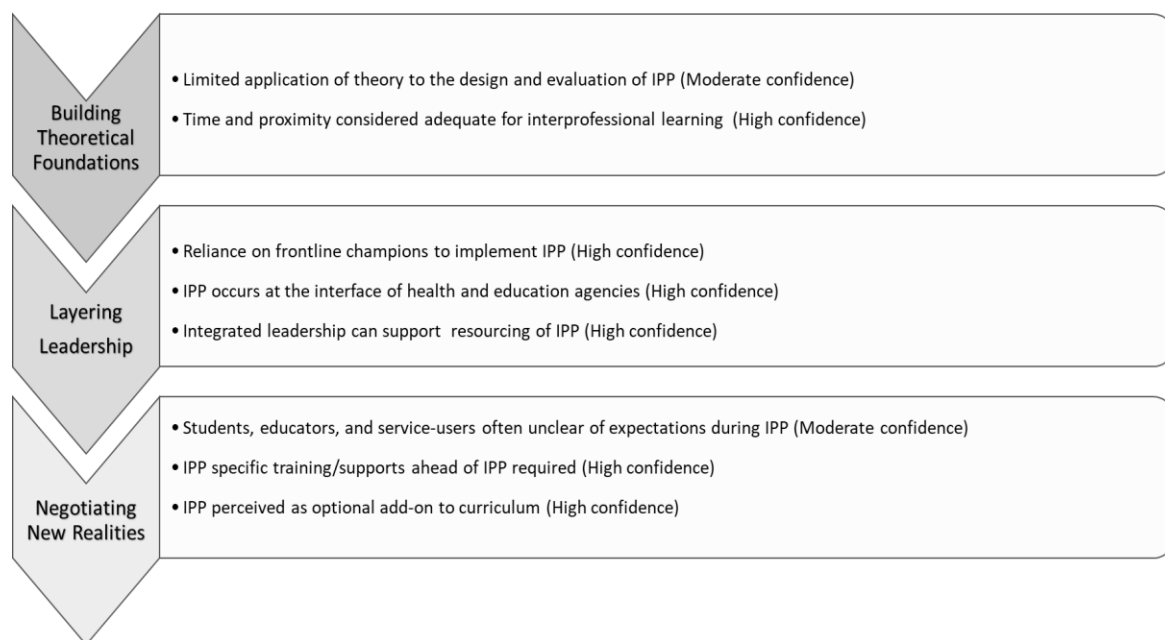


Figure 2.2: Thematic synthesis

Building theoretical foundations

Fifteen studies referenced a range of 11 theoretical models to inform IPP at the presage (planning) stage. Six of these studies applied four micro-level theories which were specific to the field of interprofessional education. These were the Leicester Model of Interprofessional Education (Anderson *et al.* 2010; Anderson and Thorpe 2010; Kinnair *et al.* 2012), integrative pedagogy model (Koskinen and Äijö 2013), Kirkpatrick framework (Craig *et al.* 2016) and the model of interprofessional mentorship (Marshall and Gordon 2010). Nine studies applied seven broader meso-level theories, namely problem-based learning (Freeth *et al.* 2001), complexity theory (Gum *et al.* 2013), contact theory (Fortugno *et al.* 2013), self-presentation theory (Fortugno *et al.* 2013), socio-cultural theory (Yang *et al.* 2017), presage-process-product theory (Brewer *et al.* 2017), and situated learning theory (Lidskog *et al.*

2009; Thackrah *et al.* 2017; Gudmundsen *et al.* 2018). From this pool of 11 theories, six authors adopted theories that focused on how individuals or groups learned: Leicester Model of Interprofessional Education (Anderson *et al.* 2010; Anderson and Thorpe 2010; Kinnair *et al.* 2012), integrative pedagogy model (Koskinen and Äijö 2013), model of interprofessional mentorship, problem-based learning (Freeth *et al.* 2001) contact theory (Fortugno *et al.* 2013) and self-presentation theory (Fortugno *et al.* 2013). Authors identified that the use of theories supported the transfer of learning across IPP contexts:

The use of theories can assist in generalising our findings to other cases (Yin, 2003b), while situating our findings in the context of the interprofessional literature.

[Researchers, school placement]

(Fortugno *et al.* 2013)

The remaining five theories considered situational or organizational contexts for learning: Kirkpatrick framework (Craig *et al.* 2016), complexity theory (Gum *et al.* 2013), socio-cultural theory (Yang *et al.* 2017), presage-process-product theory (Brewer *et al.* 2017), and situated learning theory (Lidskog *et al.* 2009; Thackrah *et al.* 2017; Gudmundsen *et al.* 2018).

Yet application of theory was inconsistent, with approximately two thirds of studies not articulating a theoretical perspective. IPP educators typically considered interprofessional contact and proximity sufficient:

We were bumping alongside each other ... that bumping and rubbing ... smoothes out the edges. [Educator, profession unspecified, university clinic]

(Friary *et al.* 2018)

Thus, a range of theories can be applied to IPP to help understand how and why learning is occurring, going beyond surface observations of interactions.

Layering leadership

Within the included studies, much impetus at the presage and process stages came from individuals involved in placement education or managers with interprofessional interests (Reeves 2008) who took on pivotal roles within the IPP process:

Having a champion who is based within the department and accessible to students and other mentors for support and guidance may well encourage engagement in interprofessional learning. [Aggregated educator perspective, varied placement sites]

(Marshall and Gordon 2010)

Although the value of consistent leadership was clear, IPP lacked coordinated support within organizations across studies. One educator commented:

Directors need to be visibly 'walking the talk' to build up trust with others in the organisation and to build links. Otherwise there is a hole in the tyre. [Nursing educator, placement site unknown]

(Missen *et al.* 2012)

This 'hole in the tyre' analogy highlights the challenge of embedding IPP in placement culture and the need for leadership engagement to gain momentum. If IPP remains dependent on individuals, sustainability is threatened:

The medical, occupational therapy and physiotherapy facilitators all reported problems of managing the demands of their 'normal' role and also providing the students with sufficient levels of support on the training ward. ... Facilitators therefore expressed concern about experiencing 'burn out' (medical facilitator) if they continued to work on the ward for a sustained period of time. [Researcher summary, training ward]

(Reeves *et al.* 2002)

There were limited examples of clear managerial involvement and how this layered approach to implementing IPP was beneficial:

The managers...had supported the pilot projects in words and deeds. They had given the clinical tutors the appropriate time for preparing the projects and in the ward additional staff resources were available in the project periods. [Researcher summary, orthopaedic ward]

(Jakobsen and Hansen 2014)

As evidenced here, IPP implementation involves additional resources which requires managerial support.

Support from individual managers alone was not robust enough to withstand personnel changes and loss of champions. In one instance this led to termination of a promising IPP:

Following the delivery of the pilot placement ... the group was similarly affected by the loss of a committed educational manager who was replaced by an individual who

was unenthusiastic about allowing students to participate in the placement.

[Researcher summary, training ward]

(Reeves 2008)

Interagency leadership between healthcare and academic organizations was a means of enhancing the robustness of IPP:

One of the challenges facing their work in the coming year was to engage more effectively the wider PDT [placement development team] of academics. This engagement would ensure widespread support provision for greater numbers of students across the professions and sector. [Placement development team members, varied placement sites]

(Williamson *et al.* 2011).

In such a climate, IPP leadership is developed across organizational levels and becomes more securely integrated into placement culture.

Negotiating new realities

During the IPP process, participants often lacked clarity regarding the purpose of this placement model. For example, students did not always understand their role and the rationale for collaboratively working with other students or service-users:

It wasn't really clear as to what everyone was supposed to be doing and why. [student focus group, care of elderly placement]

(Brewer *et al.* 2017)

Educators and service-users echoed this uncertainty, with one service-user comparing participation in interprofessional goal-setting with:

Deciding what I'm going to eat when I'm in a restaurant, but I don't have a menu. [service-user, university clinic]

(Friary *et al.* 2018)

Tools were identified to help stakeholders prepare for IPP. During the presage stage, educators believed IPP-specific training was helpful in clarifying expectations and roles:

Tutors did generally feel underprepared for the demands of teaching interprofessional groups...All felt some form of prior training would be helpful for this type of facilitation. [Researcher summary, community placement]

(Reeves 2000)

Such training may alleviate some of the challenges encountered during IPP. Educators expressed concerns regarding working interprofessionally while not exceeding their scope of practice:

She [educator] felt uncomfortable supervising other professions ... “there’s no way in the world that I would have been able to supply that information to them” [SLT Educator, disability setting]

(Chipchase *et al.* 2012)

Peer support among educators during IPP was one strategy identified to address these concerns:

Informal discussion between facilitators meant that each tended to modify their facilitation approaches during the pilot to offer more consistency. [Researcher summary, training ward]

(Reeves *et al.* 2002)

In terms of the product of IPP, students and educators grappled with balancing profession-specific and interprofessional learning outcomes:

Students had around 15 profession-specific and 10 interprofessional learning objectives ... All students (and also facilitators) felt that there were too many objectives for a 2-week placement [Researcher summary, community placement]

(Reeves 2000)

Typically, uniprofessional learning was afforded higher status. This was evidenced by students allocating limited placement time to interprofessional activity:

Some students reported ... a reluctance to replace more than two sessions of usual, discipline-specific clinical placement time. [Researcher summary, care of elderly site]

(Kent *et al.* 2014)

The language students used to describe interprofessional skills conveyed their relative value:

‘Soft’ skills ... how to problem solve and resolve conflicts ... as compared to ‘hard’ clinical skills. [Student, profession unspecified, community placement]

(Nicol and Forman 2014)

The use of ‘*soft*’ to describe interprofessional skills referenced underlying beliefs within placement culture—that interprofessional competencies are subordinate to profession-specific ones. The meaningfulness of interprofessional activity affected how students perceived IPP. For example, when students completed joint assessment and intervention:

It just became really obvious how much the patient would benefit from having everyone working together. [Student, profession unspecified, role emerging placement]

(Richardson *et al.* 2010)

Services-users also shared this perspective:

It is a good idea ... bringing them all together because it is the problem...the left hand doesn't know what the right hand is doing. [Service-user, mental health service]

(Kinnair *et al.* 2012)

Service-users understood that transforming healthcare processes required time and saw IPP as a change mechanism, whilst acknowledging this may not impact their care but that of future service-users instead:

If I can help somebody to help somebody else, even if it isn't now, if it is in the future. [Service-user, mental health service]

(Richardson *et al.* 2010)

Thus, while there is a desire for interprofessional learning, negotiating new roles and boundaries can hamper its implementation.

2.5 Discussion

Summary of key findings

The three themes elucidated the challenges of embedding and sustaining IPP as a placement model within healthcare education. In the presage window, more robust theoretical foundations could support IPP-related learning processes, while framing an understanding and critique of IPP approaches. During the process phase, layered leadership across agencies would mitigate the vulnerability evident when individual champions are too heavily relied upon. IPP requires stakeholders to navigate new placement realities in terms of collaborative relationships. From a product perspective, students and educators must negotiate service-user needs within professional boundaries while simultaneously ensuring that placement learning outcomes are achieved. Sustainable IPP may be less likely if these challenges are not effectively addressed. In our review of qualitative IPP studies, three years was the longest running IPP identified. While quantitative studies were not incorporated and several studies did not specify how long IPP was running, it may be an indicator that sustaining IPP over time is challenging and requires some changes to IPP in practice. Notably, the most sustainable IPP was purpose-designed training wards where scope was clearly defined, and organizational infrastructure appeared well-established. Such supports are required across presage, process, and product elements of all IPP models to promote longevity. This is illustrated in Figure 2.3.

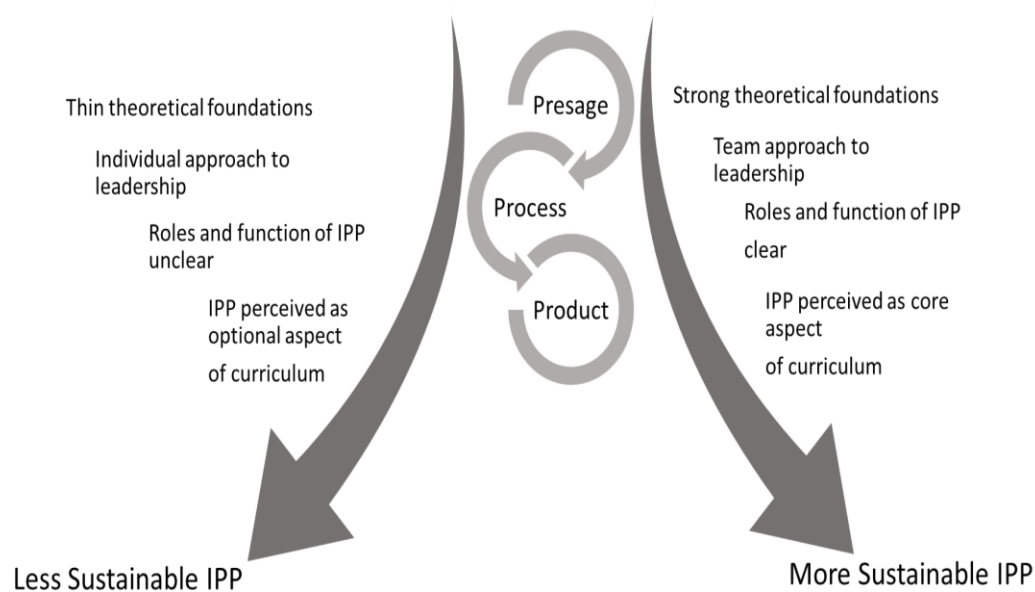


Figure 2.3: Developing sustainable IPP

Comparisons with the existing literature

Our findings align with numerous reviews advocating for the greater application of theory in interprofessional learning (Suter *et al.* 2013; Hean *et al.* 2018). The review findings indicate this is an important consideration during the presage (planning) stage of IPP. While theory can be perceived as removed from frontline practice, judicious application of theory can bridge the theory-to-practice gap by exploring the underlying mechanisms (Reeves and Hean 2013). Hean *et al.* (2009) provide guidelines to support the selection of appropriate theories for interprofessional initiatives. Five of the eleven theories cited in this review considered the learning context or organization, using theory such as complexity theory. Suter *et al.* (2013) advocated for greater use of such theories in interprofessional education, as they allow for the consideration of the dynamic environments in which learning occurs. In addition to the theories cited in this review, change management theories could add an important dimension to IPP implementation. IPP requires a significant shift in placement culture which has a strong history of profession-specific education (Paradis and Whitehead 2015). For example, diffusion of innovation theory (Rogers 1995) was applied to optimise design and delivery of a conference promoting involvement in IPE (Brewer 2016).

During the IPP process we found a lack of coordinated or layered leadership, a point highlighted across interprofessional research (Reeves *et al.* 2016; Dunston *et al.* 2018). While classroom interprofessional initiatives are generally housed within a single organization, IPP occurs at the interface of healthcare agencies and universities; therefore, layering leadership within and across agencies is required. At present, university and health service partnerships in the area of IPP lack consistency (Haines *et al.* 2014). Given the thin margins for resource redeployment available to healthcare agencies and the need for placements by universities, interagency partnerships may help reduce the burden on any one agency. Based on experiences of introducing changes in other aspects of healthcare (Nisbet *et al.* 2013), as IPP becomes more embedded resource investment may be reduced. Detailed resource mapping over time is advised to confirm this.

While we have considered formal IPP in this review, there is a body of research highlighting the potential of opportunistic interprofessional workplace learning (Nisbet *et al.* 2013; Rees *et al.* 2018). Interprofessional learning in this context may be less cost and resource intensive (Craig *et al.* 2016). However, even within this opportunistic model, dedicated time and resources are needed to facilitate learning (Howkins and Low 2015). Evidence suggests that if IPP is to have a meaningful impact on future clinical practice, two weeks is the minimum

length required (Brewer and Barr 2016; Centre for Advancement in Interprofessional Education 2017). Given that profession-specific workplace practices are often deeply entrenched (Patel and Reeves 2018; Waller 2010), all workplace interprofessional learning, both formal and informal, should be leveraged during healthcare education to maximise collaborative working foundations.

IPP requires stakeholders to negotiate new realities in their practice; however, significant attention to planning and development at the presage phase can optimise successful outcomes for all stakeholders (Centre for Advancement in Interprofessional Education 2017). Our findings identified students, educators, and service-users grappling with unfamiliar roles. For students in particular, the impact of poor interprofessional experiences included adverse perceptions of interprofessional practice, potentially reducing future collaborative working (Freeth and Reeves 2004). Positive outcomes of classroom-based IPE facilitator training (Milot *et al.* 2017) and student IPP preparation courses have been documented (Dando *et al.* 2012). It would be beneficial to develop training packages, grounded in pedagogical theory, to support those involved in IPP (Guraya and Barr 2018, p.164). With greater investment at the levels of higher education authorities, healthcare systems, and professional bodies, development of consistent and positive IPP preparation programmes is feasible. IPP preparation programmes will in turn enhance IPP experiences of all stakeholders (Centre for Advancement in Interprofessional Education 2017).

Currently, there are gaps in how stakeholders are represented within the literature. Despite a growing impetus to include service-users in research, in the studies we reviewed their contributions often lacked a specific focus on interprofessional aspects of their experience. A similar phenomenon was observed in quantitative studies (Kent and Keating 2013). If service-user contributions are to have influence, they must be meaningful (Gray-Burrows *et al.* 2018). We recommend that data collection from service-users is targeted on uniquely interprofessional dimensions of the experience and systematically included in studies exploring IPP (Liabo *et al.* 2018)

In terms of the IPP product phase, findings indicated low status of interprofessional outcomes. These were described as ‘soft’ competencies, including communication and conflict management skills. Research focused on work-readiness of healthcare graduates indicates that ‘soft’ skills are increasingly valuable to employers (Walker *et al.* 2013). Such skills support effective collaborative practice, which reduces adverse clinical events and improves patient safety (Martin *et al.* 2017). This does not imply profession-specific clinical

skills are not important, rather the current silo approach is a significant challenge to IPP and interprofessional practice (Tran *et al.* 2018). An evaluation of the balance between profession-specific and interprofessional learning outcomes is essential to support the acquisition of all skills including team communication and collaboration. Further use and development of frameworks such as the competency framework of the Canadian Interprofessional Health Collaborative (2010) may enhance clarity and consistency regarding interprofessional outcomes (Hepp *et al.* 2015).

Strengths and limitations

Greenhalgh *et al.* (2018) noted that data analysis in review papers is often less robust than the screening and appraisal process. A strength of this review is the involvement of co-authors throughout the analytical process and the use of CERQual to increase transparency of findings (Katikireddi *et al.* 2015). Through reviewing IPP literature we identified a lack of evidence-based guidelines against which to benchmark IPP. While we discussed how formal and informal interprofessional learning may result in different learning outcomes, it was not within the scope of this review to develop practice guidelines. This would represent a distinct research project and one which should be addressed as a priority within the field. The exclusion of research based on qualitative surveys and questionnaires did exclude studies containing in particular additional service-user perspectives. A review underpinned by survey-based studies may add useful information to the findings of this review. While we endeavoured to develop as comprehensive a search strategy as feasible, there may be relevant papers omitted due to issues such as limitations of search terms used (Finfgeld-Connett and Johnson 2013).

Implications for education practice

Application of theories, especially those that consider IPP in the workplace context may better inform the design and evaluation of IPP within the presage phase. During the process of IPP, shared leadership accompanied by investment from healthcare agencies and universities creates a broader support base for IPP. Those involved in IPP on the ground also require support to negotiate unfamiliar roles. Targeted training can support this. IPP develops collaborative working skills, in conjunction with maximising informal interprofessional learning opportunities and also encouraging post-registration interprofessional development.

2.6 Conclusions

We identified key challenges and a suite of theory-based recommendations to optimise IPP experiences for all stakeholders to facilitate effective implementation. Enriching IPP by responding to diverse perspectives can more deeply embed IPP within placement culture. In turn, IPP advancement will prepare a healthcare workforce for collaborative and person-centred practice to address increasingly complex healthcare needs.

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None

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Chapter 3: Paper 2

O'Leary, N. and Boland, P. (2020) 'Organization and system theories in interprofessional research: a scoping review', *Journal of Interprofessional Care*, 34(1), 11-19, available: <https://dx.doi.org/10.1080/13561820.2019.1632815>

Authorship

Noreen O'Leary led the development and writing of this paper, with primary responsibility for development of the study design, search strategy, literature screening and review, quality appraisal, data analysis, thematic analysis, and writing and editing of the manuscript. Pauline Boland contributed to all of the aforementioned stages. Professor Scott Reeves contributed to developing the concept for this paper prior to his death. Following consultation with the editorial team of the publishing journal it was agreed this did not meet the criteria for authorship, as the final paper had been significantly developed and revised. However, his contribution warrants acknowledgement as it was pivotal in shaping the direction of the paper.

Associated aim

Aim 2: To profile current theories informing interprofessional projects and research.

Research contribution

Identifying and mapping theories that currently guide interprofessional research and design were central to this paper, as we had identified this as a knowledge gap in the previous paper. Often theory has either been under-utilised or when used overly focused on individual learning theories. As practice-based IPE is a complex educational phenomenon, theories that attend to interactions between stakeholders and relevant systems (healthcare and education) were particularly applicable. Previous research indicated there are a number of such theories which could be applied to IPE research. This analytical work informed decisions regarding the theoretical framework for subsequent research phases of the project. The use of theory is an area of interest within the interprofessional field. This paper contributed to the burgeoning body of knowledge supporting use of theory in IPE. We included literature relating to IPE and IPC among qualified professionals to ensure findings were as comprehensive as possible.

Reflexivity

At the point of writing this paper, I was a novice in terms of knowledge and use of theory, not having significant prior experience. This paper provided an opportunity for

an immersion in the theoretical space, while having a focus that guided engagement. The process from writing to publication was over 12 months. I initially sought to establish a prescriptive list of theories to be used in a certain way, reflecting my strong desire for certainty at this stage of the PhD (midway through year 1). By completion of the paper and more than halfway through year 2, I had developed a greater tolerance for less prescriptive and more nuanced outcomes. This shift in perspective is carried forward into subsequent papers. My beliefs about research and practice-based IPE had become more porous, I was willing to accept less certainty and alternative perspectives.

3.1 Abstract

In recent years, there has been an increasing impetus to define and develop theoretical foundations for interprofessional research. Currently, the theories cited in such research have often focused on individual and group learning. By comparison, organization and systems theories (OST) enable consideration of system and organization level factors. A scoping review was conducted to explore the use of OST in interprofessional research published between 2013-2019. Thirty-two studies were included and 13 OST were identified. Activity theory and complexity theory were the most commonly used OST. OST are relatively well integrated into data analysis and reporting of research findings, with less consideration given to how OST can support research designs. A primary reason researchers cited for selecting OST was that such theories could best reflect the complexity of interprofessional activities. OST provide a mechanism for understanding the nuances and multifactorial issues impacting interprofessional research. OST can thus address some of the challenges of introducing and sustaining interprofessional initiatives and should be further utilized within interprofessional research.

Keywords: interprofessional, organization and system theories, scoping review

3.2 Background

Interprofessional collaboration (IPC) among healthcare practitioners is an important, though complex endeavour, influenced by socio-political factors and overt as well as covert rules for teamwork (Irajpour and Alavi 2015). Interprofessional education (IPE) for students and practitioners, seen as fundamental to eventual IPC, faces similar challenges (Varpio *et al.* 2017). Consequently, genuine implementation of IPC is an ongoing challenge (Fenwick 2014). However, the potential for IPC to address many of the healthcare issues of the 21st century is widely accepted (Patel and Reeves 2018). This has given rise to exponential growth in the volume of interprofessional research, which includes research focusing on IPC among practitioners, as well as IPE activities for students and practitioners. For example, Reeves *et al.* (2017) identified eight new reviews of IPE, published between 2009-2014 and covering a span of 400 primary research papers. However, a recurring critique of interprofessional research has been that it is '*descriptive, anecdotal, and atheoretical*' (Clark 2006, p.578).

There are likely many factors contributing to the limited application of theory in the interprofessional literature. Hean *et al.* (2012) noted that a lack of guiding principles for theory selection was a contributing factor to the dearth of theoretically informed interprofessional research. Additionally, there may be a perception among practitioners and educators that theory is the property of academics and dissonant from clinical practice (Reeves and Hean 2013). Notwithstanding the challenges of applying theory in interprofessional research, there is general agreement that well-rationalised use of theory when designing and analysing research supports in-depth understanding of interprofessional working and learning (Lorenc *et al.* 2012). Authentic use of carefully selected theory is necessary if we seek to meaningfully develop IPC and avoid '*just a tweaking around the edges of what we are now doing*' (Sargeant 2009, p.178).

Moreover, theory can lead us to question taken for granted assumptions regarding IPC and IPE and to better understand what is happening beyond the surface (Hean *et al.* 2018). Additionally, using an appropriate theoretical lens can support transfer of findings to a wide range of contexts (Reeves and Hean, 2013). Consequently, there have been deliberate moves to increase the theoretical underpinnings of interprofessional research.

Theories relating to how adults learn generally, or in groups, have proved relatively popular within interprofessional research (Reeves *et al.* 2016). For instance, principles of adult learning theory, such as problem-based learning, have been widely used in the

design of IPE activities (Reeves *et al.* 2016). Cornes *et al.* (2014) utilised Wenger's Communities of Practice theory in relation to frontline interprofessional homelessness services. However, a limitation of such theories is that their focus does not extend beyond the individuals or groups involved. As Fenwick (2012) notes, such a perspective implies that successful IPC and IPE merely requires people learning to get along, without consideration of the relevant social, historical, and political factors. In reality, interprofessionalism is influenced by multiple healthcare and education system factors, such as organizational hierarchies and resource availability (Green 2013). This has led to consideration of theories with a focus on the overall organization or system within which interprofessional research is conducted. Organizational or systems theories (OST) are underpinned by an acknowledgement that an organization or system is more than the sum of its individual parts, with actions at any one level having predictable and less predictable effects on other levels (Reeves *et al.* 2007). This reflects a post-structuralist perspective that recognizes the complexity of interactions between individuals and their environment (Mann 2011). McMurtry *et al.* (2016) have highlighted the benefits of OST as a means of situating interprofessionalism in relation to the dynamic context of learning and cultural influences.

Suter *et al.* (2013) conducted a scoping review which explicitly considered the use of OST in interprofessional research. From a comprehensive search, they identified a suite of nine OST that have previously been used in the field. These nine theories included: organizational learning (Argyris and Schön, 1978), presage–process–product (Biggs, 1993), complexity theory (Cooper *et al.* 2004), institutional theory (DiMaggio and Powell, 1983), activity theory (Engestrom *et al.* 1999), punctuated equilibrium theory (Gersick 1991), chaos theory (Krippner 1994), learning organization (Senge 1990), and systems theory (Von Bertalanffy 1971). They also concluded that greater use could be made of OST to better understand interprofessional processes. To this end they identified eight OST with potential use in interprofessional research: behavioural theory of the firm (Cyert and March 1963), stakeholder theory (Freeman 1984), differentiation–integration theory (Lawrence and Lorsch, 1967), unfreeze-change-refreeze theory (Lewin, 1951), implementation theory (Montjoy and O'Tool 1979), socio-technical theory (Trist and Bamforth 1951), diffusion of innovation theory (Rogers 1962), and contingency theory (Woodward 1965). Six years have elapsed since the publication of Suter *et al.* (2013) and during this period the body of literature involving interprofessional research has continued to develop (Reeves *et al.* 2017), with

the selection and application of theories an ongoing topic of interest. Hean *et al.* (2018) recently reiterated that OST can support advancement within the field by providing sophisticated theoretical underpinnings for IPC and IPE. Moreover, Hean *et al.* (2018) also noted that how theories are used within research papers is given limited consideration. Therefore, the aims of this review were threefold:

1. To provide an update on which OST have been used in interprofessional literature since 2013.
2. To review the application of OST in interprofessional literature.
3. To identify what OST have added to the interprofessional literature.

3.3 Method

A scoping review methodology was used as this allowed for relatively comprehensive mapping of the available evidence in relation to the use of OST in interprofessional research (Joanna Briggs Institute 2015). The scoping review guidelines designed by Arksey and O'Malley (2005) informed the process of this scoping review. Reporting in this review was also informed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews (Tricco *et al.* 2018) ([Appendix A](#)).

Inclusion criteria

- Empirical research published in English language, peer-reviewed journals from 2013-2019.
- Research with a primary focus on interprofessional collaboration (IPC) or interprofessional education (IPE), involving student or qualified professional participants.
- Use of an organizational or systems theory, as defined by Suter *et al.* (2013, p.58): *'The basic premise of systems theory is that organizations consist of multiple, interdependent parts that collectively form more than the sum of their parts. . . . In essence, organizational theory focuses on the holistic examination of organizations, i.e., the study of organizations from multiple viewpoints, using multiple methods and levels of analysis.'*

Search strategy

A specialist subject librarian and the search terms used by Suter *et al.* (2013) were consulted to develop a comprehensive search string ([Appendix B](#)). In the interests of comprehensiveness, we did not limit the search to studies using theories named by Suter *et al.* (2013). Rather, through our initial search we sought to identify any studies using theories that met the definition of OST provided in the inclusion criteria. We then conducted an additional search for the theories named by Suter *et al.* (2013) to reflect our aim of updating that review. Research databases CINAHL, psycINFO, Scopus, Education Source, ERIC, and Medline were searched. Web of Science was accessed to facilitate forward citation tracking of seminal articles. Key journals were hand searched, including: Journal of Interprofessional Care, Advances in Health Sciences Education, and Journal of Interprofessional Education and Practice.

Screening of studies

Title and abstract screening were guided by the inclusion criteria. The PRISMA flow diagram was used to record the screening process (Figure 3.1) (Moher *et al.* 2009).

Blind title and abstract screening and full text review was completed for all papers by the first and second authors.

Six hundred and eighty-five articles were identified using the search strategy. Following title and abstract screening, 644 articles were excluded. Forty-one full text articles were assessed for eligibility. Nine articles were excluded. Exclusion was due to one of the following reasons: the paper did not have an interprofessional focus, it was not an empirical peer-reviewed paper, or the full text was not obtainable despite contacting authors. Thirty-two articles were included in this scoping review (see Figure 3.1).

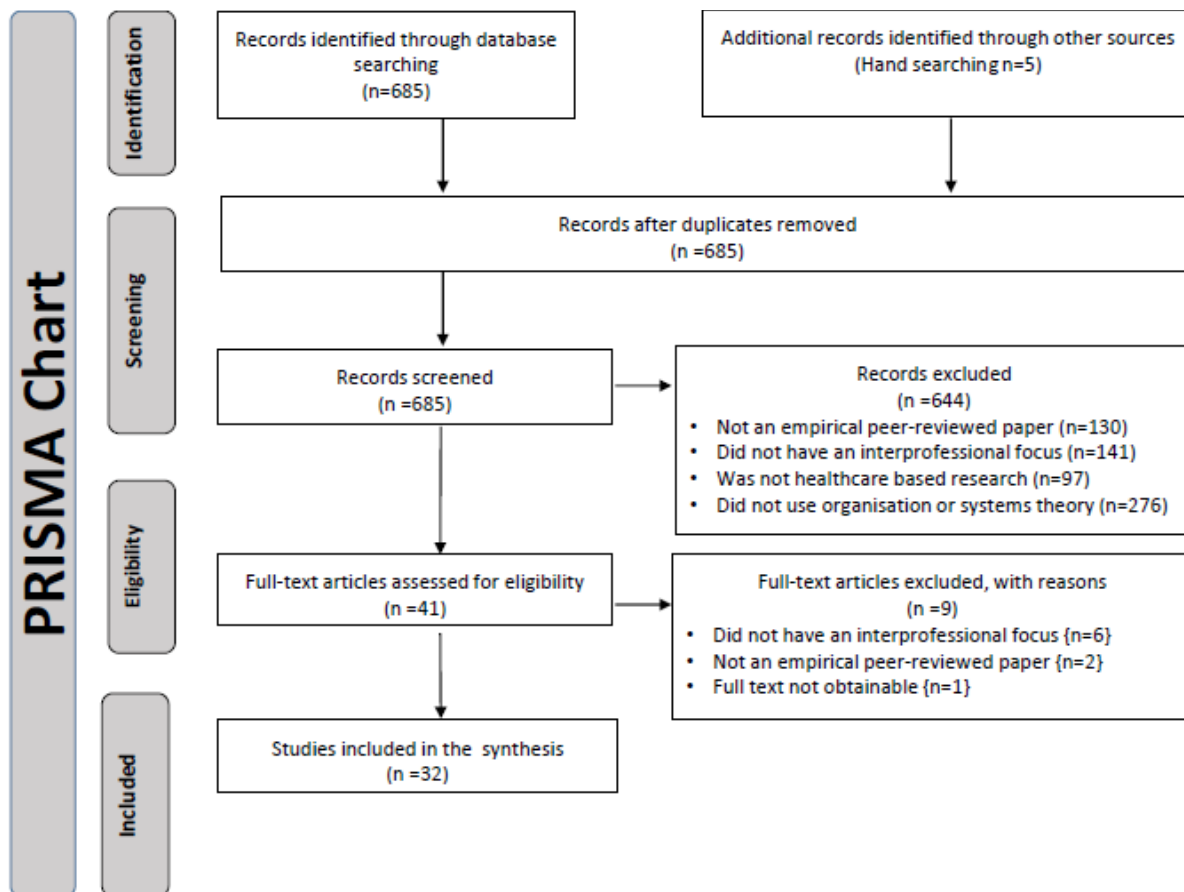


Figure 3.1: PRISMA Flowchart

Data extraction and quality appraisal

A data extraction table was developed using Microsoft Excel to summarize key information from each paper. The Crowe Critical Appraisal Tool (CCAT) was used for the purposes of quality appraisal of individual studies (Crowe 2013a). Using this tool, eight key areas of studies were rated, on a six-point scale from 0-5. A total score out of 40 was calculated for each study, which was then converted into a percentage score (Crowe 2013b). Quality appraisal is not an essential feature of scoping reviews (Joanna Briggs Institute 2015) and CCAT scores were not used to determine article inclusion or exclusion. However, the information from this tool provided a helpful overview of the quality of research in the area (Arbour-Nicitopoulos *et al.* 2018). The first author completed quality appraisal for all papers included in the review (n=32). The second author completed quality appraisal of 30% of papers (n=10). Quality appraisal scores were compared across categories. In cases where there was a divergence of greater than five marks (n=4), papers were discussed and consensus on final rating was reached between the first and second author. These discussions then informed appraisal of the remaining papers by the first author.

Data analysis

A detailed appraisal of how OST were used in each study was also conducted, as the second aim of this review was to consider the application of OST. As noted by Campbell *et al.* (2014), there is little guidance regarding how to appraise the use of theory in research. The theory review process used by Bonell *et al.* (2013) informed this section regarding features of theory use to consider. These authors devised a list of headings relevant to the theories under consideration which were adapted for the current review as follows: clarity of explanation of the theory, rationale for use of the theory, use of the theory in study design and use of the theory in study analysis. Papers were imported into NVivo 12.0 to facilitate this process. Information relating to theory was also analysed thematically to explore if there were patterns in application across studies and to identify how OST contributed to studies. Colour coding was used to highlight terms that were relevant to how and why OST were used in the different studies. As the third aim related to establishing what OST added to the included studies thematic analysis was further employed. This process was informed by the guidelines of Braun and Clarke (2006) and carried out using NVivo 12.0. Initially, coding was conducted whereby descriptive codes were developed from close reading of the included studies. Coding was theory driven insofar as we were coding in relation to the specific research

aim of interest. Consequently, coding was focused on the aspects of studies which related to this aim. Codes were then summarised into categories and from these categories we developed themes. For example, categories referring to OST in relation to conflict, resistance, and barriers to IPC and IPE formed the basis for a theme about OST addressing interprofessional challenges. These methods enabled summaries of trends and themes to be drawn across studies (Whittemore and Knafl 2005).

3.4 Findings

Study characteristics

A summary of the 32 studies included in this review is contained in Table 3.1. Twenty-eight studies were qualitative studies. Three studies utilised mixed qualitative and quantitative methods. One study used quantitative methods. Studies were conducted in the UK (n=8), Australia (n=5), Canada (n=5), Finland (n=3), Belgium (n=2), USA (n=2), Denmark (n=1), Hong Kong (n=1), Italy (n=1), Malta (n=1), Netherlands (n=1), New Zealand (n=1), and Singapore (n=1).

Twenty-one studies primarily involved IPC among qualified professionals in the workplace (Applequist *et al.* 2017; Barrow *et al.* 2015; Bergman-Pyykkönen 2017; Bostock *et al.* 2018; Bunniss and Kelly, 2013; Burm *et al.* 2019; Buttigieg *et al.* 2013; Casimiro *et al.* 2015; Clemins *et al.* 2016; de Bock *et al.* 2018; Gilardi *et al.* 2014; Kallio *et al.* 2016; McDougall *et al.* 2016; Messenger 2013; Meyer and Lees, 2013; Misfeldt *et al.* 2018; Pless *et al.* 2018; Pype *et al.* 2018; Solomon and Risdon 2014; Teodorczuk *et al.* 2015; Vestergaard and Nørgaard, 2018). Workplace studies were conducted in acute, primary-care, or disability settings and sought to explore/improve the IPC of healthcare teams in these settings. Ten studies focused on IPE with students (Anderson *et al.* 2016; Anderson *et al.* 2019; Bluteau *et al.* 2017; Brewer *et al.* 2017; Ganotice and Chan, 2019; Jorm *et al.* 2016; Kent *et al.* 2016; Liaw *et al.* 2014; O'Keefe and Ward, 2018; Teräs 2016). These studies involved a range of educational approaches such as online learning modules, classroom-based IPE, and practice-based placements. One study involved a mixture of student and professional IPE (Brewer 2016), via an interprofessional conference.

Quality appraisal

CCAT scores ranged from 63-100% in terms of overall study quality ([Appendix C](#)). In summary, studies were of relatively good quality, with limited reporting on research design and sampling among lower scoring areas.

Table 3.1: Summary of study context, research design and theory

Citation	Context	Country	Participants	Study Design	Theory Used
Anderson <i>et al.</i> (2016)	IPE Curriculum	UK	n=unspecified (studies involving students, practitioners, and practice tutors)	Qualitative	Presage-process-product theory
Anderson <i>et al.</i> (2019)	'Listening Workshop'	UK	n=65 (20 patients; 5 tutors; 40 students – 4 midwifery, 3 speech and language therapy, 8 nursing, 18 medicine, and 7 social work)	Qualitative	Activity theory
Applequist <i>et al.</i> (2017)	Patient-centred medical home initiative	USA	n=136 (56 clinicians; 15 practice managers; 13 care managers; 52 other staff)	Qualitative	Stakeholder theory
Barrow <i>et al.</i> (2015)	Intensive neonatal care and oncology	New Zealand	n=31 (14 doctors - senior registrars and consultants; 17 nurses - charge nurses, clinical nurse specialists, and nurse practitioners)	Qualitative	Activity theory
Bergman-Pyykkönen (2017)	Learning networks	Finland	n=unspecified (social workers; child welfare supervisors; 7 family workers; psychologists; family counsellors; attorneys and judges)	Qualitative	Activity theory
Bluteau <i>et al.</i> (2017)	Online discussion forums	UK	n=180 (12 groups of health and social care students - dietetics, learning disability nursing, medicine, nursing, social work, and youth work)	Qualitative	Ecological Systems theory
Bostock <i>et al.</i> (2018)	Interprofessional partnerships	UK	n=61 (frontline staff)	Qualitative	Diffusion of Innovation theory
Brewer (2016)	IPE Conference	Australia	n=100 (54 students; 23 health practitioners; 15 health educators; 7 others)	Mixed methods	Diffusion of Innovation theory

Citation	Context	Country	Participants	Study Design	Theory Used
Brewer <i>et al.</i> (2017)	Two primary schools and an aged care facility	Australia	n=38 (students - 12 occupational therapy, 10 speech and language therapy, 7 physiotherapy, 4 dietetics, 3 nursing, 1 pharmacy, 1 counselling psychology)	Qualitative	Presage-process-product theory
Bunniss and Kelly (2013)	Medical receiving ward, chronic ward, out-patient clinic and the connecting corridors	UK	n=unspecified (domestic staff, porters, pharmacists, nurses, administrators, doctors, allied health professionals, a medical physicist, and a bed manager)	Qualitative	Activity theory
Burm <i>et al.</i> (2019)	Internal medicine teaching unit	Canada	n=57 (20 registered nurses; 14 physicians; 5 patients; 4 medical students; 4 healthcare professionals; 4 nurse educators or managers; 4 medical residents; 2 caregivers)	Qualitative	Actor-network theory
Buttigieg <i>et al.</i> (2013)	Hospital mission statement	Malta	n=21 (14 interprofessional team members - 2 geriatricians, 4 nurses, 2 physiotherapists, 2 occupational therapists, 2 social workers, 2 pharmacists; 4 patients – 2 male 2 female; 3 at management level - 1 nurse, 1 physician, 1 manager)	Qualitative	Complexity theory
Casimiro <i>et al.</i> (2015)	4 in-patient units and outpatient unit	Canada	n=136 (136 participants consented to the observations)	Qualitative	Activity theory
Clemins <i>et al.</i> (2016)	Palliative care	USA	n=10 (4 nurses; 3 physicians; 1 nurse practitioner; 1 chaplain; 1 social worker)	Qualitative	Complexity theory
de Bock <i>et al.</i> (2018)	Acute setting	Netherlands	n=15 (8 nurses; 3 medical specialists; 2 interns; 2 managers)	Qualitative	Complexity theory
Ganotice and Chan (2019)	Computer based team learning	Hong Kong	n=31 (students from Chinese medicine, medicine, nursing, pharmacy, occupational therapy, and social work)	Quantitative	Presage-process-product theory

Citation	Context	Country	Participants	Study Design	Theory Used
Gilardi <i>et al.</i> (2014)	Emergency department	Italy	n=26 (physicians; treatment room nurses; triagists; department heads)	Qualitative	Distributed Cognition theory
Jorm <i>et al.</i> (2016)	One-off IPE event	Australia	n=328 (Students from 12 healthcare degree programmes)	Mixed methods	Complexity theory
Kallio <i>et al.</i> 2016	Interprofessional meetings	Finland	n=55 (20 pharmacists; 18 nurses; 15 physicians; 2 other health care professions)	Qualitative	Network theory
Kent <i>et al.</i> (2016)	General practice and a residential care setting.	Australia	n=55 (48 students – 20 medicine, 6 nursing, 4 occupational therapy, 13 pharmacy and 5 physiotherapy; 7 educators - 4 medicine, 1 nursing, 1 pharmacy, and 1 physiotherapy)	Qualitative	Activity theory
Liaw <i>et al.</i> (2014)	Simulation scenarios	Singapore	N=127 (medical and nursing students)	Mixed methods	Presage-process-product theory
McDougall <i>et al.</i> (2016)	Acute setting	Canada	n=47 (patients; carers; doctors; nurses)	Qualitative	Actor-network theory
Messenger (2013)	Children's Centres	UK	n=25 (8 early years practitioners; 8 family support workers/community workers; 5 health professionals - nurses, midwives, health visitor, speech and language therapists; 4 teachers)	Qualitative	Socio-cultural theory Organizational theory
Meyer and Lees (2013)	Children's Trust	UK	n=27 (8 healthcare professionals; 8 social workers; 6 youth service staff; 5 education staff)	Qualitative	Activity theory
Misfeldt <i>et al.</i> (2018)	Primary care team	Canada	n=111 (24 registered nurse/licensed practical nurses; 22 managers/leaders; 12 dietitians; 12 family physicians; 8 mental health clinicians; 7 pharmacists; 5 exercise specialist/active living consultant/kinesiologist; 5 non-specific	Qualitative	Socioecological theory

Citation	Context	Country	Participants	Study Design	Theory Used
			clinical staff; 4 social workers; 4 office assistants; 3 physiotherapists; 3 non-clinical staff; 2 non-specific Primary Care Network staff or providers)		
O'Keefe and Ward (2018)	Healthcare schools	Australia	n=22 (12 faculty staff; 10 community health practitioners)	Qualitative	Activity theory
Pless <i>et al.</i> (2018)	Multiple Sclerosis	Belgium	n=31 (14 nursing care providers; 11 paramedical care providers; 6 medical care providers,)	Qualitative	Socio-technical theory
Pype <i>et al.</i> (2018)	Palliative care	Belgium	n=59 (21 palliative home-care nurses; 20 community nurses; 18 GPs)	Qualitative	Complexity theory
Solomon and Risdon (2014)	Disability services	Canada	n=28 (24 workshop participants; 4 facilitators)	Qualitative	Complexity theory
Teodorczuk <i>et al.</i> (2015)	Delirium care	UK	n=15 (nurse; physician; physiotherapist; manager; care facilitator; social worker; health care assistant; occupational therapist; pharmacist; porter; cleaner; nutritionist; patients; carers)	Qualitative	Activity theory
Teräs (2016)	Oral hygiene and dentistry	Finland	n=26 (dentistry and oral hygiene students and instructors)	Qualitative	Activity theory
Vestergaard and Nørgaard (2018)	Orthopaedics	Denmark	n=35 (heads of departments; health professionals - nursing, occupational therapy and physiotherapy; interprofessional instructors; team leaders)	Qualitative	Stakeholder theory

Overview of OST used in studies

Within the 32 studies included in the final synthesis, 13 distinct OST were used. First, we report on the theories identified by Suter *et al.* (2013). Activity theory was used in ten studies (Anderson *et al.* 2019; Barrow *et al.* 2015; Bergman-Pyykkönen 2017; Bunniss and Kelly, 2013; Casimiro *et al.* 2015; Kent *et al.* 2016; Meyer and Lees, 2013; O'Keefe and Ward 2018; Teodorczuk *et al.* 2015; Teräs 2016). Complexity theory/science was used in six studies (Buttigieg *et al.* 2013; Clemins *et al.* 2016; de Bock *et al.* 2018; Jorm *et al.* 2016; Pype *et al.* 2018; Solomon and Risdon 2014). Presage-process-product theory was used in four studies (Anderson *et al.* 2016; Brewer *et al.* 2017; Ganotice and Chan 2019; Liaw *et al.* 2014). Stakeholder theory (Applequist *et al.* 2017; Vestergaard and Nørgaard 2018) and diffusion of innovation theory (Brewer, 2016; Bostock *et al.* 2018) were each used twice. Each remaining theory from those identified by Suter *et al.* (2013) was only used once: organizational theory (Messenger 2013) and socio-technical theory (Pless *et al.* 2018).

Five OST identified by Suter *et al.* (2013) as having applicability to interprofessional research were not found: behavioural theory of the firm, contingency theory, unfreeze-change-refreeze theory, differentiation-integration theory, and implementation theory. Four theories that had been applied during the previous review were not found: chaos theory, institutional theory, learning organization, and punctuated equilibrium theory. Six eligible theories not mentioned by Suter *et al.* (2013) were identified: ecological systems theory (Bluteau *et al.* 2017), actor-network theory (Burm *et al.* 2019; McDougall *et al.* 2016), distributed cognitive theory (Gilardi *et al.* 2014), network theory (Kallio *et al.* 2016), socio-cultural theory (Messenger 2013), and socioecological theory (Misfeldt *et al.* 2018).

Application of OST within studies

An overview of theory application is provided in [Appendix D](#). In 22/32 studies, researchers explained their application of theory in enough detail for the reader to understand the key principles of the theory. For example, Brewer (2016) provided a succinct overview of the key principles of diffusion of innovation theory in the introduction, illustrating principles with examples. Contrastingly, Bunniss and Kelly (2013, p.1198) merely stated “*later sections discuss our findings within the theoretical framework of activity theory ... particularly on the concept of ‘knot-working’ as a useful illustration of how staff members improvise strategically to negotiate everyday*

challenges in the health care activity system". In such instances, prior knowledge of theoretical features such as 'knot-working' were assumed.

In 21/32 studies there was a clear justification regarding the OST chosen. Authors such as Brewer (2016, p.34) explained why the theory they selected was suitable for their research. An illustrative example of this was the sentence "*as IPE is still viewed by many as an innovation in health education, Rogers' 'diffusion of innovation' was selected to inform our strategy*". Bluteau *et al.* (2017) referenced activity theory, actor-network theory, and complexity theory, prior to justifying their choice of ecological systems theory. In contrast to this approach, Casimiro *et al.* (2015, p.56) simply stated that their research '*was anchored in the premises of activity theory ... a rich approach to understanding the complexities of collaboration in the clinical context from a socio-cultural perspective*'. This explanation lacked a clear rationale for why this theory was suitable for the specific research in question.

When information was compared across studies, there appeared to be recurring reasons informing decisions as to which OST to use. For instance, authors regularly made explicit reference to the complex nature of healthcare organizations when justifying theory selection. For example, Jorm *et al.* (2016, p.2) stated that '*healthcare itself can be understood as a complex adaptive system at many levels ... complexity theory has special relevance*'. Some authors also explicitly referred to the need for consideration of factors beyond the individual in interprofessional research. For example, Teodorczuk *et al.* (2015, p.746) stated that '*applying cultural historical activity theory ... new approaches to practice are proposed. ... these approaches go beyond individual level to include ... learning at team and macro levels.*'

In terms of methodology, 19/32 studies used theory to inform their research design. For example, Vestergaard and Nørgaard (2018) used the principles of stakeholder theory to inform their focus group interview schedule. Jorm *et al.* (2016, p.3) also explained how each of the key principles of complexity theory informed the design of their interprofessional educational activity, stating '*the educational design was underpinned by the three key components of complexity theory; diversity, self-organization and emergence*', later noting that '*the notion of emergent products in complexity theory guided the design of the summative assessment*' (Jorm *et al.* 2016, p.3). Contrastingly consideration of how their chosen theory could inform the research design was not evidenced in other studies such as Misfeldt *et al.* (2018, p.29) '*the interview schedules*

included open-ended questions on the challenges that teams faced and their strategies for resolving these issues.'

Descriptions in 31/32 studies showed how OST were used to inform data analysis and findings, with varying degrees of depth and integration. Authors reported that OST provided nuanced means of viewing findings of interprofessional research, by taking account of human and non-human interactions and acknowledging the impact of tools and technology. For example, in a study of emergency department admission procedures, distributed cognition theory was used to facilitate consideration of how the computer check-in programme impacted triagist-doctor interactions, *'to overcome the perceived limitations of the artefact, some triagists developed an alternative, informal, synchronous information channel to prevent the disappearance of certain potentially relevant details'* (Gilardi *et al.* 2014, p.1303). Similarly, actor-network theory highlighted how fluid retention (a non-human factor) impacts interprofessional management of patients with heart failure (HF) *'fluid's ability to create tensions in collaborative HF care was further illustrated in the frequent negotiations over competing framings for fluid. ... Cardiologists prescribe diuretics for fluid management as a matter of fact, but this framing constitutes a matter of concern for nephrologists focused on caring for the kidney'* (McDougall 2016, p.112). Non-human factors can thus have a significant impact on the implementation and success of IPC *'What emerged was a pervasive influence of the non-human on collaboration. Through a combination of misalignments between scheduling, workload, electronic and paper records ... healthcare providers consistently struggled to engage in meaningful collaborative dialogue'* (Burm *et al.* 2019, p.160). Burm *et al.* (2019) concluded that staff members exerted human agency to compensate for these shortcomings, cautioning that this approach may lead to staff burnout over time if organizational learning did not occur to support IPC.

OST were also used to unpick and address interprofessional challenges. For example, within activity theory, consideration of socio-historical contexts supported understanding of the stance of professional groups in relation to IPC *'participants reflected on historical policy and organizational influences affecting their collaborative practice, helping them understand why their practice had developed as it had'* (Meyer and Lees, 2013, p.677). Contradictions within a system were viewed as opportunities for creating momentum for change *'within the theoretical perspective of activity theory, it can be argued that the most troublesome challenges in relation to implementing IPL*

could be embraced as contradictions that may lead to change’ (O’Keefe and Ward, 2018). Similarly, McDougall *et al.* (2016, p.115) used the term collaborative entanglement to outline an alternative way of viewing professional differences *‘collaborative entanglement is marked by team members’ recognition that other disciplines frame materials differently. ... such recognition underpins the possibility of collaboration evident in our data.’* OST also provided a vehicle for explaining why interprofessional initiatives may or may not have been effective *‘The socioecological model. ... allows for a multi-sectoral approach to identify the factors that facilitate team-based care or conversely, the factors that are causing issues for the teams on the ground’* (Misfeldt *et al.* 2018, p.32).

In addition to being used retrospectively, OST were also used prospectively during the planning of interprofessional initiatives. Presage-process-product theory was used to inform design of an IPE project *‘Central to the model is the relationship of the sequence of three activities: presage, process, and outcome’* (Ganotice and Chan, 2019, p.212). Stakeholder theory allowed for consideration of a range of stakeholder perspectives that were important to the uptake of interprofessional initiatives *‘viewing the results ... through the lens of stakeholder theory provides added insight into the reasons why certain messages were perceived as most effective in securing buy-in’* (Applequist *et al.* 2017, p.917).

3.5 Discussion

OST have been suggested as a suite of theories which support more contextually situated understandings of IPC and IPE. Therefore, this review aimed to identify which OST are being used in interprofessional research, how they are applied, and what they add to the interprofessional knowledge base.

Overall, the findings of the current scoping review indicate that since the review of Suter *et al.* (2013), there has been a greater range of OST integrated into interprofessional research. We identified 32 studies in a six-year period. While we only found evidence of three of the eight potential OST identified by Suter *et al.* (2013), we identified six OST not referenced in the original review. OST use has also increased in the latter half of the six-year period of this review. Ten studies were published between 2013-2015, while 22 papers were published from January 2016 to April 2019.

Within the current review, activity theory and complexity theory were the most used theories in interprofessional research. One potential explanation may be that researcher choice of OST is influenced by the epistemological origins of OST and whether researchers are already familiar with these epistemologies. For example, activity theory has its roots in socio-cultural theory, which focuses on how society affects individuals (Frambach *et al.* 2014). Healthcare and educational professionals are typically reasonably familiar with social models such as the social model of disability (Burchardt 2004). Thus, OST with socio-cultural roots may have an intuitive resonance with those involved in interprofessional research.

It is also useful to consider visibility of specific OST within interprofessional research. Theories with a history of use in the field are more likely to be found in the literature (Hean *et al.* 2012). In this vein, it may be less likely that OST with business or manufacturing origins will be found in healthcare or education literature. Consequently, interprofessional researchers in healthcare may have less exposure to such OST and therefore are less likely to consider them when conducting research or designing interprofessional initiatives. Complexity theory provides a good example of how this can be addressed. Despite originating in mathematical sciences, complexity theory has been the subject of a series of publications since the early 2000's seeking to illustrate its transferability to healthcare research (Fraser and Greenhalgh 2001; McMurtry and Paré 2008; Greenhalgh and Papoutsi 2018). Thompson *et al.* (2016) reported an upward trend in terms of healthcare research informed by complexity theory. Therefore,

guidance and examples on how to apply less familiar OST to interprofessional research may be beneficial.

However, we do need to remain cognisant of ‘goodness of fit’ of OST to interprofessional research. It may be that some OST are better suited than others to addressing the issues pertinent to interprofessional research. Recall that we identified three of the eight potential OST identified by Suter *et al.* (2013) in interprofessional research (stakeholder theory, diffusion of innovation, and socio-technical theory). It may be that such OST are more suited to interprofessional research, where interprofessional relationships are often a primary focus of concern (Hall *et al.* 2013). We did not find evidence of five OST recommended by Suter *et al.* (2013); behavioural theory of the firm, contingency theory, differentiation-integration theory, unfreeze-change-refreeze theory, and implementation theory. These five theories primarily originated in business-related research. However, Hall *et al.* (2013) suggests that interprofessional research requires flexible and creative application of a range of diverse theories, given the ‘*complexity of interprofessionalism, healthcare and human systems*’ (p.79). Therefore, as IPC and IPE continue to evolve, there may be benefits to having a wider pool of OST to choose from, to eloquently address ever more nuanced and complex research questions (Hean *et al.* 2012). The key consideration should be the ability of the chosen theory to address the research question.

In addition to looking at the nature of OST in use, this review also considered how OST are used within studies. From the current review, authors explain and justify their choice of OST reasonably well. Less consideration appears to be given to the actual application of OST to inform research design, beyond introductory acknowledgement of theory. While most studies considered the principles of their chosen OST during data analysis and reporting, the degree to which theory informed this aspect was highly variable. It may be the case that in writing within word count restrictions, references to OST are curtailed in favour of describing research methods or reporting primary findings and recommendations. However, as a result, theory application can appear fragmented within a study and lack integration into the overall research. Therefore, the following working principal is recommended. When OST, or indeed any theories, are selected, information as to how the theories informed the study rationale, research design, and analysis should be provided. Therefore, the OST would be integrated into key aspects of the research and meaningfully inform the research process and outcomes, and ideally enhance both the rigor of future research and the development of theory in this field.

The papers included in this review demonstrated that OST have much to offer interprofessional scholarship. IPC and IPE occur in dynamic and open systems, with multiple human agents and non-human factors at play. These papers highlighted the impact of external and non-human factors on IPC, such as technological tools.

Greenhalgh and Papoutsi (2018) argue that understanding the interactions between individuals involved in IPC and external and non-human factors should be an essential consideration by those planning interprofessional initiatives. OST can provide a lens through which to spotlight these aspects and extend our understanding of what is working/not working during interprofessional activities. Similarly, theories such as presage-process-product theory can guide planning, implementation, and evaluation of IPC and IPE. Indeed, Fenwick *et al.* (2012) describe OST as a valuable resource that can support interprofessional initiatives.

Furthermore, a common practitioner critique of theory is that it does not relate to the real world in which they operate. However, within the sphere of healthcare, practice is becoming increasingly complex. Tsoukas (2017) argues that to capture the complexity of the real world, complex theories are required which use theoretical concepts to connect distinct aspects of lived experiences. Therefore, research informed by OST may capture experiences of those involved in IPC and IPE to a fuller degree than theories with an individual or group focus. This in turn may increase the impact and uptake of research findings in practice.

A limitation of this scoping review is that only English language studies were included which may have limited the results. Furthermore, the quality of conclusions drawn from a review are dependent on the quality and comprehensiveness of included studies (Boland *et al.* 2017). Thompson *et al.* (2016) have noted that articles using theories may be missed during the searching phase, as theory names are not consistently included in medical subject headings (MeSH) index or article titles. Hand-searching of key journals and forward citation tracking of key articles in this review was utilised to mitigate for this. Also, CCAT scores indicate that the overall quality of studies included is relatively good, which enhances confidence in the conclusions drawn from the included studies.

Despite the limitations, an update on the use of OST within the field was a timely endeavour, as we identified 32 new studies using OST which were published from 2013-2019 and were not included in the review of Suter *et al.* (2013). Therefore, this update sheds light on relevant developments within the field over a six-year period (Garner *et al.* 2016). Moreover, this review provides commentary on increased use of

OST and potential benefits of OST use in interprofessional research, as well as recommendations for addressing challenges of applying OST in this field.

3.6 Conclusions

OST can provide a mechanism to better understand the complex dynamics at play during IPC and IPE. OST based on socio-cultural theory are the most commonly used OST in interprofessional research. Increased use of a diverse range of OST in interprofessional research should lead to IPC and IPE initiatives that are based on robust theoretical foundations and ultimately enhance healthcare practice.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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Chapter 4: Paper 3

O’Leary, N., Salmon, N. and Clifford, A.M. (2020) ‘The contribution of theory to an ethnographic case study on interprofessional placements in healthcare education’, *International Journal of Social Research Methodology*, available: <https://dx.doi.org/10.1080/13645579.2020.1756636>

Authorship

Noreen O’Leary was the primary author. She was responsible for developing the concept and outline for the paper, as well as writing and editing the manuscript. Nancy Salmon contributed to developing the concept for the paper and provided detailed reviews and critiques of the paper at key stages during the process of developing the manuscript. Amanda Clifford contributed to refining the concept for the paper and provided detailed reviews and critiques of the paper at key stages during the process of developing the manuscript.

Associated aim

Aim 3: To design a theoretically informed qualitative case study.

Research contribution

This paper was constructed to detail the process of designing and carrying out a theoretically informed ethnographic case study. While designing this case study there was little to draw upon regarding researcher experiences of integrating theory throughout research design. Typically, papers cite the theory used and application is at the data analysis stage. In contrast, we reflected on the influence of theory at different stages of designing, carrying out, and analysing the research. We also highlighted how the limitations of certain theories were addressed by drawing upon additional theories to strengthen the theoretical framework.

Reflexivity

The paper provided an opportunity to engage with methodological concepts and to contribute to methodology scholarship. Having completed the preceding scoping review, I had a better understanding of the types of theories relevant to practice-based IPE. However, I still felt unsure about how to use these theories to inform my research. I felt more apprehensive about this aspect than other aspects of the research, as I could not source the same type of guidance. It was in this liminal space the concept for this paper was developed. I felt that a process orientated paper could make a meaningful

contribution. If I was struggling with figuring out how to apply theory perhaps other researchers were in a similar position and that this might be contributing to under-utilisation of theory. Nevertheless, while developing this paper, I questioned my credentials to offer guidance to other researchers and this prompted deep engagement with the material. Through developing and writing this paper, I became more aware of how methodology is not just a vehicle for getting to the point of data collection but a key element of the research. I became more aware of how my worldview as a qualitative researcher drawing on an ethnographic case study methodology needed to be reflected in the decisions I made. I became increasingly aware of how the methodology and theories chosen impact what the researcher will draw from the findings, even before any data is collected and thus why this needs to be transparently communicated to readers.

4.1 Abstract

Theoretical frameworks add depth to research and increase transferability of findings. Unfortunately, theory application within interprofessional research is often ad hoc, superficial, and poorly reported. Consequently, there are limited examples for researchers in the field to draw on when selecting and applying theory. In this paper we explore how a suite of sociomaterial and sociological theories were selected to guide an ethnographic case study about interprofessional placements. Theory supported development of nuanced data collection tools. This facilitated comprehensive exploration of the factors impacting interprofessional placements, beyond those immediately visible. The use of a combination of theories was well suited to this complex phenomenon. We recommend research methodology training aims to develop researcher facility with theory and encourage more consistent consideration of theory in reporting and quality appraisal tools. This may support more meaningful theory application, generating findings with deeply embedded theoretical foundations in interprofessional research.

Keywords: healthcare, educational research, research design, theory

4.2 Introduction

Theory has traditionally been underutilised in interprofessional scholarship (Reeves and Hean 2013). There are increasing efforts to address this deficit (Cohen Konrad *et al.* 2019). In 2013 the Journal of Interprofessional Care dedicated a special edition to the topic of theory in interprofessional research, including review and empirical articles (Reeves and Hean, 2013). More recently, Hean *et al.* (2018) published a BEME Guide to support the use of theory in interprofessional curricula. However, theory does not yet hold a clearly defined space within interprofessional research and use continues to be largely discretionary (Paradis and Reeves 2013). While conducting a qualitative metasynthesis relating to interprofessional placements, the authors of this paper noted that two thirds of studies were descriptive and lacked explicit theoretical underpinnings (O’Leary *et al.* 2019).

Historically, educational researchers from health and social care professionals considered their research, including interprofessional research, as too pragmatically orientated for theories to make a meaningful contribution (Reeves and Hean, 2013). A drawback of this stance is that it limits our ability to grapple with underlying education processes and outcomes beyond what is directly observable. Globally, educational and general research agendas are moving ever more towards not only answering ‘*does it work*’ questions but more so ‘*how does it work, for whom and in what contexts?*’ (Brazil *et al.* 2005). Theory provides a means to address the latter questions, facilitating transfer of findings to other populations or situations (Gear *et al.* 2018). This in turn increases research breadth and impact (Tracy 2012).

However, if research papers are conceptualised as stories, theory often becomes a “*lost character*” (Brown *et al.* 2019, p. 444). There are many contributory factors to this.

Within literature there is a lack of clarity around what is meant by terms such as theoretical framework and theoretical model, with the terms often being conflated with conceptual framework (Green 2014; Varpio *et al.* 2019). Researchers may also question the accessibility and utility of theories to their research (Davidoff *et al.* 2015).

Traditionally, academic texts frame theories in “*obscure polysyllabic language*” (Norman 2004, p. 178), clouding their applicability to 21st century research. But theories need not, and indeed should not, be static entities (Painter *et al.* 2008). For example, consider the progressive development of activity theory which is relatively common in interprofessional research (O’Leary and Boland, 2020). Activity theory evolved from a basic theory about how people use physical and psychological tools to

achieve workplace objectives (first generation activity theory) to a much more sophisticated theory considering how workplace culture, norms, and tensions influence how people act at work (third generation activity theory) (Johnston and Dornan 2015). Thus, in a continual synergistic manner it is through application to research that theories become more refined and valuable (Cook *et al.* 2007). Conversely, the less theories are applied, the more obsolete they may become. This is confounded by the limited guidance available to researchers to inform theory selection (Birken *et al.* 2017). Given the many potentially relevant theories available in the context of limited selection guidance, choosing a theory for research can be a daunting undertaking (Shearn *et al.* 2017).

Even when no theory is cited in interprofessional research, Davidoff *et al.* (2015) posit that the innate explanation-seeking nature of human beings means some form of a theory is present. What may be absent is an explicit labelling or systematic accounting of the role theory plays (Green 2014). This is problematic because it obscures how theory influenced the research and researcher. Theory use (implicitly or explicitly) leads researchers to foreground certain aspects of the work while leaving other dimensions unexamined (Maxwel 2013). It is therefore important that researchers transparently reflect on these influences, enabling readers to assess the impact on research findings. A further issue is that theory is often used uncritically in interprofessional research (Green, 2014) or applied retrospectively to research findings, bypassing the additional dividends theory can pay when considered during research design and data collection (Lynch *et al.* 2018). Consequently, readers may infer that the theory made little meaningful contribution to the research, and its value is diminished. Research culture may perpetuate this practice. As an example, reporting tools such as the Standards for Reporting Qualitative Research (O'Brien *et al.* 2014) refer to theory as a feature to reference in reporting but no guidance is provided regarding depth required. An exclusion caveat is provided in the statement that authors report on '*guiding theory if appropriate*' (O'Brien *et al.* 2014, p. 3). The '*if appropriate*' addendum is not added to other features such as reporting on the research paradigm. Similarly, critical appraisal tools typically do not ask questions about whether and how theory was used in empirical research (Green 2014). Consequently, there is a lack of minimum standards expected when applying and reporting on theory (Daly *et al.* 2007). This is a significant gap in terms of creating a coherent theoretical thread throughout the research (Beck and Stolterman 2016). Word count restrictions are often cited as limiting author scope for

articulation of how theory informed research design decisions (Painter *et al.* 2008). Unfortunately, this perpetuates the vague use of theories, a pitfall we were keen to avoid during this research.

An ethnographic case study relating to the process of establishing interprofessional placements for students of allied healthcare programmes was the context of our research. The case study approach facilitated comprehensive exploration of interprofessional placements within a university and partner placement sites (Yin 2014). Adopting an ethnographic methodology allowed for lengthy engagement with stakeholders and direct participant observation (Parker-Jenkins 2018). Interprofessional placements are defined as students from two or more professions working together at a clinical site (Morphet *et al.* 2014). They come under the broader umbrella of interprofessional education, occurring when *‘two or more professions learn with, from and about each other to improve collaborative practice and quality of care’* (Centre for Advancement of Interprofessional Education 2017, p. 4). This paper forms part of the first author’s doctoral research, which is ongoing at the time of writing. Given the current stage of research, this paper focuses upon relating theory to the research paradigm and data collection methods. The primary aim of this ethnographic case study is to improve understanding of the complex process of establishing sustainable interprofessional placements. To this end the overarching question was *‘what are the experiences of stakeholders involved in implementing and sustaining interprofessional placements?’* Thus, it was necessary to explore what conditions are required to implement and sustain this placement model (Hean *et al.* 2016). The underpinning epistemology and ontology of this research was one of critical realism. As such our aim was to try to understand this phenomenon in a way which most closely reflects the reality of interprofessional placement experiences (Barron 2013). Data collection methods suitable for this research design included document analysis, participant observations, and interviews (Roberts 2009). We sought to track the process of considering theory from the initial stages of the research process. Providing a worked example of how theory can inform empirical interprofessional research will add to the limited but growing body of theoretically informed research in this field and support other researchers to use theory. As such the aims of the current paper were to:

1. Outline the steps involved in designing a theoretically informed ethnographic case study.

2. Illustrate how synergistic theories guided this interprofessional ethnographic case study.

4.3 Method of designing a theory infused case study

In this section, a four-step theory selection and application process is presented, with illustrative examples from the current project. These four steps have been distilled from author experiences and reflections while designing and conducting an ethnographic case study.

Step 1: Identifying potential theories

A necessary first step was to identify theories with the potential to contribute to the research project. Scoping relevant literature can help map theories in use (Halas *et al.* 2015) and identify trends in terms of theory use, illustrating what type of theories have been applied to what type of research (Im and Ju Chang 2012). Educational conferences or conference proceedings can also provide insight into how theory is currently being used in a field (Kuper and Whitehead 2013).

Application to ethnographic case study

Literature scoping was initiated by developing a search string of key terms and trialling in relevant databases. The search strategy incorporated terms such as ‘interprofessional’, ‘collaboration’, ‘education’, and ‘theory’, using databases including CINAHL, ERIC, and Medline. This process highlighted that sociomaterial theories were showing increasing promise within the field, as a suite of theories capable of reflecting the complexity of interprofessionalism (further detail on these findings can be found in O’Leary and Boland 2020). Sociomaterial theories have a post-structuralist focus on interactions between humans and their environments, including non-human entities such as technology (McMurtry *et al.* 2016), reflecting a growing understanding of the complexity of interprofessionalism (Fenwick *et al.* 2012). Patterns were also identifiable as to which specific sociomaterial theories had been applied to interprofessional research, including activity theory, complexity theory, presage-process-product, and actor-network theory, all of which were potentially applicable to this ethnographic case study. This stage also primed the authors to consider layering theories to enrich the overall research design if appropriate based on recommendations in literature such as Hean *et al.* (2018).

Step 2: Determining alignment between theories and research paradigm

The next step required alignment of the potential theories to the overarching research paradigm, to ensure coherency of approach and philosophy (Grant and Osanloo 2014).

To determine how well the theories, research paradigm, and methodology align, extrapolation and comparison of the key principles of each was required.

Application to ethnographic case study

In this case the chosen research paradigm was critical realism, based on the premise of three distinct layers: the empirical (what we know and experience via our senses), the actual (all events, including those we do not know about), and the real (underlying mechanisms that generate events) (Hood 2016). Critical realism occupies an ontological position between positivism (reality is objective and knowable) and constructivism (reality is subjective and interpreted) (Bergman *et al.* 2012). Critical realism is interested in matters of causation, agency, structure, and relations (Archer *et al.* 2016). As the research aimed to account not only for participant experiences but also the role of structure and culture, a critical realism paradigm was deemed to be the most appropriate in this context. The next step in our case study was to identify theories that would align with this research paradigm. While a number of theories consider individual learning (for example, adult learning theory) and group perspectives (for example, contact theory), these tend not to account for the role of culture and structure on interprofessionalism (Fenwick 2012). In contrast, sociomaterial theories were a good fit for this research as they reject the notion that learning is individualistic, emphasising that learning '*is embodied in dynamic relationships among people and their physical contexts*' (McMurtry *et al.* 2016, p.171). Therefore, the orientation of sociomaterial theories and realism were well suited to generate meaningful understandings about the phenomenon of interest. While there are differing views as to the role of theory in ethnographic research, these relate more to *when* theory is used than *if* it is used and this is addressed in relation to data collection (Wilson and Chaddha 2009) (Further details can be found in [Appendix A](#), outlining the alignment of the research paradigm, theories, and methodology).

Step 3: Selecting specific theories

Potential theories should be considered for 'goodness of fit' in terms of answering the research question (Kilminster 2017). This was done by applying potential theories to pilot or pre-existing data and interrogating what the theory added to data interpretation. Researchers also need to bear in mind that limitations of chosen theories may only become apparent during the process of application and new theories may need to be considered during the research process (Kramer-Kile 2012).

Application to ethnographic case study

We reviewed interprofessional research and broader healthcare educational research to identify potentially suitable sociomaterial theories. This included complexity theory (Cilliers 1998), actor-network theory (Latour 2007), structuration theory (Giddens 1984), and presage-process-product theory (Biggs 1993). Pawson (2000) refers to these types of theories as middle-range theories. In this sense they are not micro theories specific to the phenomenon, yet neither are they grand level highly abstracted theories (Reeves and Hean 2013). Theories were evaluated for goodness-of-fit during data collection and analysis (Jagosh *et al.* 2015). This was done by applying potential theories to pilot data, drawn from participant observation notes written following an interprofessional placement debriefing meeting. This allowed authors to identify the strengths and limitations of each theory and decide on the theory combination that supported the richest understanding of the data. For example, authors posed a series of questions related to the data using constructs from the theories. For example, *what distinct systems are involved in the setting up of interprofessional placement and how do they interact?* It is important to note that theories were not used to test hypotheses in the data but as lenses through which to make sense of empirical experiences (Wilson and Chaddha 2009). For instance, the construct of structural theory that rules and regulations only exist when deliberately enacted did not align with the data (Beringer *et al.* 2006). Actor-network theory which assigned agency to these was more representative of our data. Prospective adoption of *a priori* theoretical frameworks also informs methodological choices. To fully represent data complexity necessitated drawing on theories in combination. Presage-process-product theory identifies features affecting IPP at different stages of the process. This was relevant as we sought to better understand how different stages from planning to evaluation interacted. As such, layering theories allowed for a more nuanced approach compared to employing a single theoretical lens (Reeves *et al.* 2008). This inductive approach to development of the theoretical framework was guided by the data and our interpretations in contrast to analysing data according to a pre-existing theoretical framework (Varpio *et al.* 2019). We also realised the need to look beyond the initially identified sociomaterial theories to explore social and cultural issues more deeply (Reeves 2016). To do so involved sourcing interprofessional research identifying itself in its title or abstract as having a sociological orientation. These included Goldman *et al.* (2016) *'A sociological exploration of the tensions related to interprofessional collaboration in acute-care*

discharge planning’ and Reeves (2005) ‘*Developing and delivering practice-based interprofessional education: successes and challenges*’. For example, we became aware that how educators negotiated during the planning stages of interprofessional placements was variable and impacted outcomes. To explore this in more depth, a sociological theory (negotiated order theory - Strauss 1982) was recruited to augment the sociomaterial perspective. Complexity theory provided rich detail on the initial implementation of IPP. However, to more deeply explore sustainability, we utilised Normalization Process Theory (NPT) (May and Finch 2009).

Figure 4.1 presents the overall suite of theories used to inform the ethnographic case study and what each theory contributed. To our knowledge, the three socio-material theories (complexity theory, actor-network theory, and presage-process-product theory) and two sociological theories (negotiated order theory and NPT) that ultimately comprised our theory base, were not combined previously. Review of the key constructs of each theory confirmed that no fundamental contradictions mitigated against layering them.

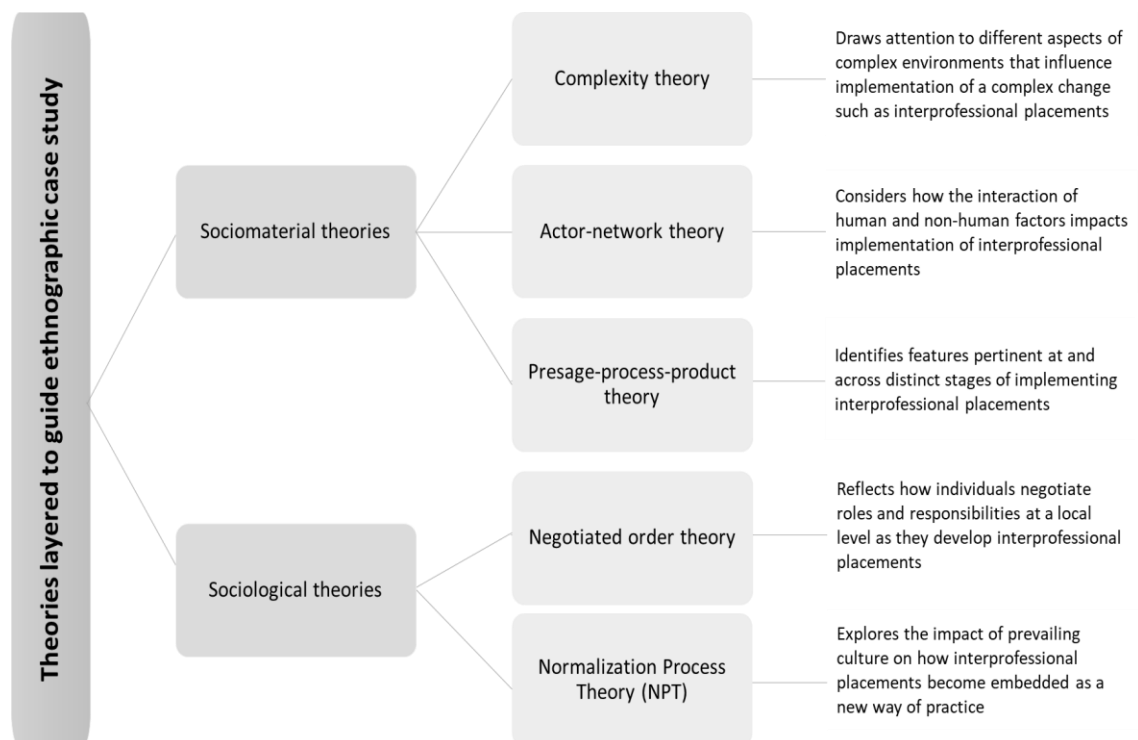


Figure 4.1: Theories applied to ethnographic case study on interprofessional placement

Step 4: Applying theory to research methods

During this step it was necessary to identify the research methods appropriate to the research question and type of research being undertaken (Tracy 2010). At this stage, constructs from chosen theories can inform the development of data collection tools. Kramer-Kile (2012) suggests reviewing the research question, the theories being used and the research approach to inform what data collection methods will be used. Sampling can also be informed by theory, which may highlight participants not captured by demographic criteria but who can provide rich data on an aspect of the phenomenon highlighted by the theory (Willis *et al.* 2007).

Application to ethnographic case study

Decisions were informed by author group discussions to clarify the key areas to focus on during data collection. For example, how bigger/powerful and smaller/less powerful systems interacted as well as the impact of cultural norms and technology on the process of establishing a new placement model. Ultimately, we selected document analysis, participant observations, and interviews as suitable methods for this ethnographic case study. This combination allowed for analysis of how human and non-human factors interacted to enact this new practice, interprofessional placements in this case (MacLeod and Ajjawi 2020). A summary of the decision-making process is outlined in Table 4.1. At the initial stages broad families of theory that would be suitable were identified. As data collection and analysis procedure were established, this was refined to specific theories. As this was a multi-phase, multi-site research project, ethical approval was required at specific stages from different research ethics committees. Theoretically informed sampling helped ensure relevant groups not directly involved in interprofessional placements were included in applications for ethical approval. For example, the potential contribution of academic staff involved in interprofessional placement preparation modules were highlighted by ‘neighbouring interactions’ when IPP was viewed through the lens of complexity theory. If this had emerged during data collection it may not have been feasible to invite them to participate due to ethical approval timelines and the voice of a relevant group may have been absent from the research.

Table 4.1: Decision-making process regarding theory selection and application

Research Question: What are the experiences of those involved in implementing and sustaining interprofessional placements?

	Paradigm	Methodology	Methods: Data collection	Methods: Sampling
Research Phase	Realism: human experience is influenced by interactions and construction of experience as well as factors beyond human perception and observation (Danermark, Ekström, Jakobsen, & Karlsson, 2002)	Ethnographic case study: immersion / lengthy engagement within the field of interest to develop in-depth socio-cultural understanding of the phenomenon (Parker-Jenkins, 2018; Yin, 2014)	<u>Document analysis</u> : placement handbooks, assessment forms, regulator documents <u>Participant observations</u> : meetings, trainings, and activities relevant to interprofessional placement <u>Interviews</u> : stakeholders with experiences related to interprofessional placement	<u>Demographic sample</u> : educators and students directly involved in interprofessional placements <u>Theory informed sampling</u> : academic staff, administrative staff, university management
Example of theoretical considerations and contributions	The premise of realism guided us to consider sociomaterial and sociological theories over theories of individual and group learning as we wanted	Aligns with sociomaterial and sociological perspective on viewing a phenomenon in relation to the context in which it occurs	<u>Negotiated order theory</u> : applied to observations of how participants engaged in negotiations around IPP <u>Presage-process-product theory</u> : facilitated demarcation of different stage of implementation and key drivers or inhibitors at different stages.	Extended the invitation to participate to academic, administrative, management, and clinical staff as they have a key role in whether or not initiatives are sustained – Normalisation Process theory

	Paradigm	Methodology	Methods: Data collection	Methods: Sampling
	to represent the impact of system and cultural factors		<p><u>Actor- network theory</u>: lens to analyse participant interaction and interpretations of documents and how documents informed participant practices.</p> <p><u>Complexity theory</u>: interviews and observations analysed for conditions outlined in the theory that were more or less helpful for implementing and sustaining interprofessional placement</p>	

Subsequent activity involved developing theoretically informed, sensitive data collection tools for use in this case study – interview schedules and observation guide. A balance needed to be struck between remaining open to observing unanticipated phenomena during data collection and attending to pertinent factors specified by the theories selected. Examples of theoretically informed data collection tools are provided in [Appendix B](#). There were a limited number of studies which made explicit reference to how theory informed design of data collection tools. For example, Vestergaard and Nørgaard (2018, p. 186) stated that *‘normative theory describes ... desirable ideas and goals for the situation and focus group questions concerned whether the preconditions for these goals theoretically were present in the process.’* During data collection we identified a recently published paper by Agreli *et al.* (2019), utilising NPT to inform the design of an ethnographic observation tool and interview schedule. This paper was especially useful as a reference point for designing data collection tools for this case study. To this end development of data collection tools was an iterative process. We initially developed a broad-based participant observation tool, which the first author used to gather pilot data. This data was used to guide author group discussions to extend and refine the participant observation guide and develop a context-sensitive interview schedule. Tools were initially designed without explicit reference to theory and trialled. Subsequently tools were reviewed through theoretical lenses, aligned to theoretical principles, and amended in order to reflect relevant theoretical features. Therefore, this method can be said to be both inductive (data informed) and deductive (theoretically informed) (Wilson and Chaddha 2009). This allowed for both contemporaneous observation logging related to theoretical features as well as retrospective data reflections through the theoretical lenses.

Although data analysis is in the early stages, it is anticipated that this process will reflect a similar approach to that of developing data collection tools, whereby data is initially analysed without explicit reference to theory and subsequently considered through theoretical lenses. Though it must be acknowledged that theoretical influences can never be suspended by the researcher (Kramer-Kile, 2012). It may also occur that during the process of data analysis some theories become less applicable in framing the results and are thus positioned less centrally while others become integral to understanding the data. Our experience so far suggests that individual reflection and group discussion on theoretically informed data interpretations will be essential during

data analysis. Figure 4.2 summarises steps 1-4 from this section, as a guide to the process of theory selection and application.

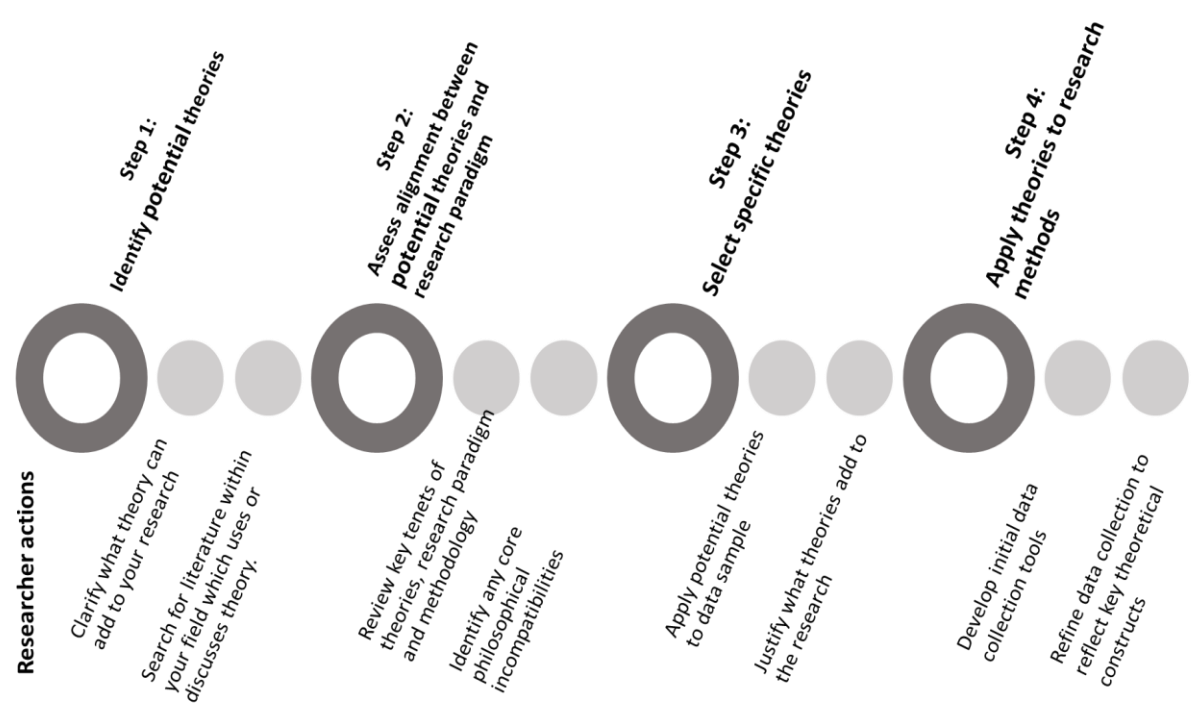


Figure 4.2: Theory selection and application

4.4 Discussion

Guidelines about how to identify, select, and apply theory to research is poorly articulated for interprofessional researchers. In this paper we sought to illustrate the decision-making process regarding how theories were chosen and subsequently applied within the early stages of an ethnographic case study attending to interprofessional placements. Developing theoretically informed research requires the researcher to actively consider what theory can add at each stage (Bolander Laksov *et al.* 2017). Furthermore, application of theory is not a goal in itself as this does not enhance the research quality. Rather there should be a clear rationale for how theory will meaningfully contribute to answering the research question and enhance findings (Silverman 2010).

Currently within interprofessional research, we cannot definitively state that research underpinned by theory leads to better practice and educational outcomes than research not applying specific theories. However, the experience of designing a theoretically informed case study led us to look at less obvious aspects of interprofessional placements. For example, considering interactions between non-human factors such as frameworks and humans through the lens of actor-network theory to understand how this influenced development. Applying theory can help researchers move from implicit assumptions about what works to thinking in a more nuanced and creative manner when designing and evaluating innovations (Lynch *et al.* 2018). Hence, it is contended that using theory can help answer questions about how and why interprofessional initiatives are or are not working, at a level not accessible in the absence of theory (O’Leary *et al.* 2019). Drawing on evidence from other fields there are signs that theory may enhance research quality. For example, within the field of health behaviour change, it appears that theoretically informed interventions are more successful than those without clear theoretical foundations (Noar and Zimmerman 2005). Moreover, Hodges and Kuper (2012) extrapolated findings from psychotherapy research which implies it may be the process of meaningful theory application rather than the theory itself which leads to higher quality research.

Kurt Lewin in 1952 stated that ‘*there is nothing as practical as a good theory*’ (Reeves and Hean 2013). However, constructs such as ‘good’ may deter some researchers from engaging with theory, due to fears of not choosing the optimal theory. Having gone through the process of designing theoretically informed research, it is proposed that ‘good’ in this context is a relative term. A theory that is good for one research project

may be wholly unsuitable for another. It is useful to think about theory in terms of matching a good theory to the right piece of research. Researchers are advised to illustrate why the chosen theory is 'good' for their research context by providing a robust rationale for the decisions taken (Hean *et al.* 2018).

As in this research, it may not be realistic or even desirable to expect that one theory can fully make sense of all aspects of a complex phenomenon (Clark 2006). It is likely this is an issue of relevance for many qualitative researchers, who are often seeking to understand complex issues (Thirsk and Clark 2017). Pawson and Tilley (1997) compared this type of research to trying to understand how clocks operate. The clock face does not reveal the hidden processes which cause the clock to work/not work, this requires an examination of the inner workings (Astbury and Leeuw 2010). In the research context, theories represent the tools used to examine and understand the inner workings of the phenomenon of interest. A combination of theories may be required as opposed to just one single tool or theory. Theory triangulation, involving more than one theory, is an accepted method of adding rigour to qualitative research (Carter *et al.* 2014). This also aligns with the assertions of Tsoukas (2017) that we may need to use theories creatively and in more complex ways to make sense of complex phenomena. Yet this requires researchers to think in a theoretically flexible manner (Kramer-Kile 2012), that is not only applying constructs of a single theory but connecting congruent constructs from different theories which may seem daunting for researchers unfamiliar with theory. In this case the research team consisted of an early career researcher and two researchers with more extensive experience relating to theoretically grounded methodology. This enabled exploration of different ways of combining theories. Ultimately as the first author was most immersed in the data collection and analysis process, she was responsible for choosing the final theoretical framework, informed by collaborative consultation with co-authors. Based on our experience, it is suggested that the level of theoretical conceptualisation be tailored to what is required to answer the specific research question (Brown *et al.* 2019).

This is not to suggest theoretical principles be diluted or that relevant aspects be omitted, which Lor *et al.* (2017) rightly caution against. Rather the aim should be an illustrative description of the theoretical features pertinent to the present research and a clear explanation for why these features were salient and others were not. For this research there were certain features of complexity theory which were particularly relevant. For example, the principle of nested systems was highly pertinent, as there are

many interrelated, but independent systems involved in interprofessional placements. Collaboration among the research team to explore, critique, and evaluate goodness-of-fit of theories to the research question was a key feature in designing this theoretically informed case study (Lordly *et al.* 2012). Such an approach may facilitate theory application among other researchers.

The prospective application of theories before and during the research process, as compared to retrospectively applying theory to research findings, highlighted the benefits of this approach. The process of developing data collection tools was more coherent and nuanced than when this was done in the absence of specified theories. One caveat to this approach is that researchers must ensure that data collection instruments do not become overly focused on fitting the theory, to the detriment of capturing the range of participant experiences, which is integral to qualitative research (Leeming 2018). During the current research this was managed through a cyclical process of developing, reviewing, and revising the data collection tools to achieve a culturally attuned balance.

There is no hard and fast formula for theory selection (Lynch *et al.* 2018). We found that choosing suitable theories was an iterative process and tailored to our specific context. Presently, there are some broad-based tools available to help researchers identify the theories that might be most appropriate for their research. For example, Hean *et al.* (2012) propose a series of factors to consider in theory selection, including the research context and who it is being used by and used for. These can help ensure alignment between the research aim and the theories chosen (Hean *et al.* 2018). Based on our experiences it would seem reasonable that two researchers could choose two different and even divergent theories to underpin the same research. As compared to other aspects of research design, decisions about theory can feel less clear-cut and more intuitive (Hammond 2018). The priority for each researcher should be to provide readers with enough information to understand the decision-making process and judge for themselves the appropriateness of the theory.

More broadly speaking there is a need to create a healthcare research culture where the role of theory is better understood. One avenue through which to begin addressing this is to build theory-related content into researcher training. Currently, researcher training rarely provides input on the application of theory to research design (Lau and Traulsen 2017). Training to sensitise researchers, both at student and professional development levels, to the role of theory in research may be beneficial (Hean *et al.* 2018). It may also

be useful to embed theory as a core criterion in reporting and quality appraisal tools. There are emerging tools to support researchers evaluate their use of theory. Daly *et al.* (2007) proposed a four-level hierarchy for assessing the strength of qualitative research based on degree of theoretical conceptualisation. These range from studies not informed at all by theory to those informed throughout by theory and with greater potential for transferability. Bradbury-Jones *et al.* (2014) developed a five-stage typology to evaluate the integration of theory into research, ranging from absent to consistent application. Applying this typology to research would allow authors support assertions that theories were consistently applied. These tools can also be utilised by editors and reviewers to facilitate more consistent consideration of theoretical integration during the peer-review process. Word limits are often cited as barriers to detailed articulation of the thinking informing decisions made during the research process. Including online supplementary material which is additional to word count and does not carry printing costs (Price *et al.* 2018), enables authors to provide evidence of theoretical deliberations. If there is an expectation to document and publish this aspect of the research process, it may improve the consistency with which theory is used.

4.5 Conclusions

There are long term benefits to cultivating a more theoretically informed research culture within interprofessional research. Consistent theory application can lead to a more coherent body of research (Willis *et al.* 2007). In turn research is then more likely to inform health and education practice and policy decisions, as the impact beyond local participant groups can be understood (Daly *et al.* 2007). The role of researchers is to carefully consider and apply appropriate theories throughout the research process, thus contributing to nuanced and impactful research findings.

Conflict of Interest

The authors report no conflict of interest

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Chapter 5: Transition to original research

This point of the thesis marks the transition from desktop research, whereby I was doing reviews and designing my research, to the stage of conducting original research. I had commenced this doctoral project in September 2017, and I was preparing for active research during 2018 (development of data collection tools and preparing submissions for research ethics committees). In January 2019 I commenced the active research component of the project. This stage involved conducting two independent and linked research studies to document stakeholder experiences of practice-based IPE. As this thesis is part of a PhD by publication, I was required to develop each study into a paper for publication in a peer-reviewed journal. This created some challenges in terms of maintaining attention on the overall focus of the research and demonstrating how some of the principles I had identified when designing my research were implemented in research practice. For example, in paper 4 only one theory is applied. Yet in paper 3 I highlighted the advantages of layering different theories. The study in paper 4 was designed and initially reported on using three theories: complexity theory, negotiated order theory and Normalisation Process Theory (NPT). A key aspect of peer-review and editor feedback was that within the parameters of the paper this created fragmentation in how the story of the study was presented. In responding to this feedback, I re-wrote key sections such as the findings only applying one theory at a time. NPT emerged as the theory which was the best fit for this study. In a second example, I engaged with another journal editor prior to developing paper 5. They advised that one core or anchor theory which can be augmented by a secondary theory is preferable for a journal paper, as it maintains coherence for the reader and does not necessitate familiarisation with a range of potentially unfamiliar theories. Therefore, in paper 5 I applied one key theory (activity theory) and justified the use of a secondary theory (Hofstede's cultural dimensions) to enhance the cultural aspect of the study. The process of recognising the limits of a theory and recruiting a suitable additional theory represented development of my own ability to understand and evaluate the contribution of each theory while communicating theory clearly to the readership of high-quality journals.

Moving into this phase of research also helped me understand in more depth why sustaining practice-based IPE can be so difficult. Although I have over a decade of experience working clinically, I was not involved in bringing students together for practice-based IPE. I was able to see first-hand the many barriers which exist, and which are explored in greater detail in papers 4 and 5. These ranged from ideological,

whereby some educators were not convinced of the value of IPE for students and patients, to the logistics of having a space large enough to accommodate multiple small groups for an IPE tutorial. Through observation I could see the cumulative impact this had on even the most valiant frontline IPE champions. There was a sense of ‘*nothing is easy*’ about practice-based IPE and I could better understand why so many projects I had read about had not thrived. I was also struck by the lack of theory visible in practice-based IPE. Although I knew theory use was limited, I was still surprised to see this in practice. The prevailing cultural norm seemed to be that bringing students together for an activity would be enough to develop collaborative skills. In papers 4 and 5 these factors are explored.

Paper 4

O'Leary, N., Salmon, N. and Clifford, A.M. (2020) 'Inside-out: normalising practice-based IPE', *Advances in Health Sciences Education*, available: <http://dx.doi.org/10.1007/s10459-020-10017-8>

Authorship

Noreen O'Leary was the lead author for this paper, overseeing development of the research design, conducting all data collection, leading data analysis, data synthesis, and the writing and editing of the manuscript. Nancy Salmon contributed to developing the research design, data analysis, data synthesis, and the writing and editing of the manuscript. Amanda Clifford contributed to developing the research design, data synthesis, and the writing and editing of the manuscript.

Associated aim

Aim 4: To generate an account of key stakeholder perspectives on integrating practice-based IPE into healthcare curricula.

Aim 5: To propose data and evidence informed recommendations for integrating practice-based IPE into healthcare curricula.

Research contribution

The aim of this paper was to synthesise the experiences of a university practice education team. This group have a vital role in the integration of practice-based IPE as they are the bridge between the academic and healthcare setting, working with students and clinical educators. Therefore, gaining their perspective on practice-based IPE was essential. The research design was informed by what was learnt and developed from the previous three papers, both in terms of research design and focus of inquiry. As the metasynthesis highlighted sustainability as a key issue, this was a consideration for this phase of the research, tempered by the need to respond to the data as it emerged from this research and not seek to fit it to preconceptions.

Reflexivity

Prior to this phase my only experience of research involved one-off interviews with participants I did not know outside of that context. This experience was quite different, as I was engaging in observational data collection. Additionally, I knew the participants prior to commencing data collection and had ongoing interactions with them throughout. I was aware of subtle differences in how I interacted, depending on whether

I was actively collecting data or not. During data collection I tended to use a lot of reflective listening and use participants' own words when paraphrasing or responding to questions. Outside of data collection I was also aware of not imposing my own opinions too strongly, aware this might influence participants as to what I wanted to hear during data collection. During this phase I was taken aback by the volume of roles and responsibilities associated with the practice education team. I had entered the research with a rather one-dimensional concept of their roles, to coordinate placements. However, as I became aware of their many roles during data collection and engaged in discussions with advisory panel members with practice education experience, I was able to contextualise practice-based IPE. In addressing this cognitive dissonance, I became increasingly aware of why it is important to enter the research space with as much curiosity and open-mindedness as possible.

The process of refining and streamlining the theory used to maintain coherency within the paper was a pivotal aspect for me in terms of making and justifying key decisions as the lead author. It was the writing and editing of this paper that I felt established my authenticity as a researcher in the field.

5.1 Abstract

Practice-based interprofessional education (IPE), a key feature in developing a collaboration-ready workforce, is poorly integrated in healthcare curricula. This study aimed to synthesise educator perspectives on implementing practice-based IPE and develop recommendations to inform sustainable practice-based IPE. An ethnographic case study was carried out at a school of allied health. Data collection involved six observations, 11 interviews, and a review of eight documents. Reflexive thematic analysis, informed by Normalisation Process Theory, established two key themes. First, we found that strategic planning is needed, with a coherent implementation agenda and planned reflection on activities. Second, building partnerships with placement partners was identified as essential. This can be achieved by supporting and championing practice-based IPE activities developed by placement sites and establishing how university and clinical educators can work collaboratively to deliver sustainable practice-based IPE. These conditions create a favourable environment for normalising practice-based IPE in healthcare curricula, benefitting students, patients, and the overall healthcare service.

Keywords: interprofessional education, practice-based, Normalisation Process Theory

5.2 Background

Healthcare graduates are expected to be collaboration-ready practitioners (Thistlethwaite 2015; World Health Organization 2010). To achieve this objective, policymakers, regulators, and educators recommend incorporating interprofessional education (IPE) into healthcare education programmes (Khalili *et al.* 2019; Steven *et al.* 2017). This can involve classroom, simulated, and practice-based IPE. Practice-based IPE involves students from two or more professions learning together at clinical sites (Morphet *et al.* 2014), facilitating development of collaborative working skills (Rees *et al.* 2018). The Centre for Advancement in Interprofessional Education (CAIPE) recommend each healthcare student have at least one interprofessional placement during training (CAIPE 2017).

Practice-based IPE is complex to implement (Sargeant 2009), necessitating the interaction of different professions from health and education systems in busy clinical settings. Students and clinical educators aim to simultaneously deliver optimal patient care and achieve educational objectives. University staff coordinate placements, support educators and students, and oversee student assessment. Furthermore, practice education is traditionally uniprofessional (Reeves 2008), with practice-based IPE representing a considerable change to practice (Boshoff *et al.* 2020). While practice-based IPE has increasingly featured in interprofessional literature (Brewer and Barr 2016), research has primarily focused on evaluating student experiences (Roberts and Kumar 2015). Few studies have considered issues relating to sustainability and relationships between health and education systems (Herath *et al.* 2017). A recent metasynthesis highlighted the issue of sustainability, with limited evidence of practice-based IPE projects extending beyond three years (O'Leary *et al.* 2019). Therefore, we require detailed accounts and analyses of issues relating to implementing practice-based IPE, as these influence student opportunities for developing collaborative working skills before entering the workforce.

Theories which acknowledge and account for complexity can support us to understand how new practices, such as practice-based IPE, become (or do not become) embedded in practice (Fenwick *et al.* 2012). Moreover, theoretically informed explanations are increasingly sought in interprofessional research (O'Leary and Boland, 2020).

Normalisation Process Theory (NPT) considers how specific mechanisms enacted by the people involved (agents) can promote or inhibit adoption of new practices (May and Finch, 2009). Key mechanisms are outlined below (Figure 5.1), based on de Brún *et al.*

(2016). Activation of these mechanisms influences whether a new practice becomes normalised, adopted (accepted but not normalised), or rejected (May *et al.* 2007).

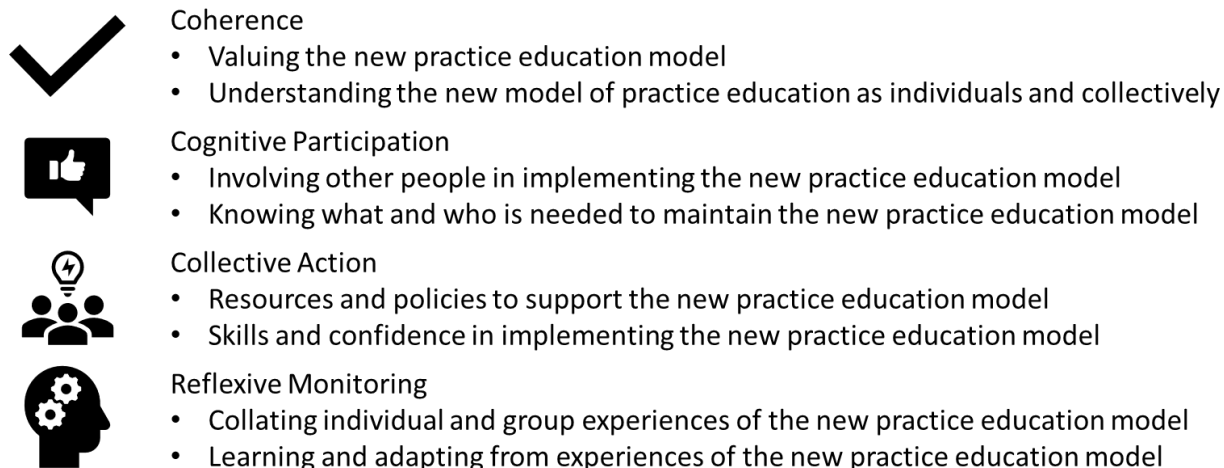


Figure 5.1: Mechanisms of Normalisation Process Theory

Research question and aims

This study is part of a larger research project that addresses the question: how does practice-based IPE become integrated in a school of allied health? The specific aims of this paper are:

1. To generate a theoretically informed account of the process of normalising practice-based IPE.
2. To develop recommendations for implementing sustainable practice-based IPE in healthcare curricula. These recommendations could inform other complex changes in healthcare education.

5.3 Methodology

Research design

This research was framed as an ethnographic case study (Parker-Jenkins 2018), underpinned by a critical realist paradigm (Bhaskar 2008). As such our aim was not to discover an objective truth but to generate an account that most closely reflected participant experiences (Fletcher 2017). Gear *et al.* (2018) advocate integrating theory throughout the research process, rather than applying to discrete sections. As such, we considered NPT throughout the research, including development of data collection instruments and data analysis. Drawing on principles of participatory health research, an Advisory Panel of relevant stakeholders was convened (Salsberg *et al.* 2015). The Advisory Panel were involved in formulating the research proposal, reviewing ethics applications, contributing to design of data collection tools, and providing feedback on data analysis. Ethical approval was provided by the Research Ethics Committee of the Faculty of Education and Health Sciences, University of Limerick (Approval 2018-12-30). Participant information leaflets and consent forms can be found in [Appendix 1](#).

Setting

This school was initially set up as a Department of Clinical Therapies within a Faculty of Education and Health Sciences, comprising four distinct programmes: a post-graduate speech and language therapy, occupational therapy, and physiotherapy programme and an undergraduate physiotherapy programme. More recently a post-graduate programme in human nutrition and dietetics commenced. From the early 2010's, the school identified IPE as a priority area. A period of curriculum review in the mid 2010's involved development of five IPE modules which students complete at the university and alignment of practice education timetables across programmes. Reorganization of individual departments into a School of Allied Health took place in 2018. The school is staffed by administrators, academic staff, and a practice education team (PET). The PET is responsible for sourcing placements, supporting students during placements, and assisting educators with student facilitation and assessment. Depending on the specific programme and roles, some PET members work alongside academic staff at the university, while others are based in clinical settings. Although development of PET roles and responsibilities may have evolved differently among Irish universities and differ structurally from other international sites, the key feature of relevance for this paper was their designated roles in implementing and embedding a new model in the sphere of practice education.

Data collection

The first author observed and interviewed PET members based at the university (n=7) and clinical sites (n=4) (Table 5.1). Participants were predominantly female, and perspectives were informed by interprofessional clinical and educational experiences in the Republic of Ireland and internationally. Participants worked in roles for a median time of five years (ranging from under two years to greater than 10 years). As observation is a cornerstone of ethnography, this was the initial method of data collection. Preliminary observations informed development of interview guides and directed the researcher to relevant documents. Observations involved planning meetings for practice-based IPE, educator training, and site visits. The maximum number of participants at an observation was eight and these eight participants were represented in different combinations across observations. The role of the researcher was fully observational initially. As participants became more familiar with the researcher, the role became more observer as participant (Kawulich 2005). For example, answering questions related to interprofessional literature. Therefore, the researcher had acquired peripheral membership but did not become a core member or contributor (Adler and Adler 1994). Data collection tools can be found in [Appendix 2](#).

Table 0.1: Data collection summary

Method	Time/quantity of data
Observation	6 observations over 10 hours (observation duration was 20 to 120 minutes)
Interviews	11 (average length of 39.5 minutes within a range of 26-73 minutes)
Documents	8 (Module handbooks, regulatory documents, placement resource packs)

Data analysis

Data was organised using NVivo 12.0 software, with reflexive thematic analysis employed as the analytical approach (Braun and Clarke 2019). As such, findings were not predetermined but generated by the interaction of data, theoretical and paradigm influences, and researcher analytical skills (Braun and Clarke 2019). Consequently, findings are presented by integrating theoretical concepts and citations from the raw data, including field notes and quotations. To promote transparent analysis and reporting, we used the 15-Point Checklist of Criteria for Good Thematic Analysis Process (Braun and Clarke 2006). Reflexive strategies included sharing data interpretations among the research team and Advisory Panel to interrogate preliminary

themes (Smith and McGannon 2018). Analytical memos and development of visual displays enhanced analytical rigour (Bazeley 2009).

5.4 Findings

Participants were committed to developing practice-based IPE while grappling with making this a reality. Although some deliberate steps were taken to establish practice-based IPE in this school, it was not yet an integrated practice education model in the curriculum. Using the mechanisms of Normalisation Process Theory (NPT), we sought to tell the story of this complex endeavour recognising that it does not fall into a linear start-middle-end narrative. Rather we documented an ongoing process of adapting to evolving circumstances and realities. To explain the pivotal aspects of the process we developed two overarching themes—strategic planning and building partnerships—and discuss these using NPT mechanisms (Figure 5.2).



Figure 5.2: Overview of key themes

Strategic planning

This theme examines the planning and monitoring processes relating to practice-based IPE. The NPT mechanisms of coherence (how stakeholders value and make sense of the new practice) and reflexive monitoring (how the new practice is evaluated and monitored) (de Brún *et al.* 2016) are used to interpret participant experiences and outcomes.

Coherence

Participants clearly and collectively valued practice-base IPE, giving multiple examples of how this model enhanced patient care and believing it was needed to prepare students for the reality of clinical practice:

[Practice-based IPE] is hugely important because if we don't prepare the students in their training they can't be prepared to do it immediately when they graduate ... we're always trying to find ways of improving healthcare delivery ... and to me interprofessional education seems like a very logical place to start, to get students working together. [Interview 3]

Furthermore, as part of a curriculum review, placement timetables were reorganised to ensure students across programmes had overlapping placement timetables, as it was understood students needed greater opportunities for practice-based IPE. This was a lengthy process, following which momentum for further change was depleted:

That took a good two to three years to develop and then further time to cement it down ... it was quite hard to get things up and moving again and generate some energy around this [practice-based IPE] again. [Interview 5]

The PET felt a responsibility for directly developing and facilitating practice-based IPE.

When we talk about each student having IPE on placement ... that is a huge number of placements that we need to facilitate, and you still have a huge commitment to what you're already doing. [Interview 2]

Yet time had not been given to developing a collective implementation strategy for actualising practice-based IPE in the curriculum. For example, there was not an agreed collective definition of practice-based-IPE for the site:

There are differing opinions on what it is and what shape it takes and what we can classify as interprofessional education on placement. [Interview 1]

Consequently, there was ambiguity about what the team were aiming to achieve:

We need a plan for what we're actually going to do ... so if we could agree that we're going to aim for a certain amount for the next placement. [Interview 8]

In NPT terms this aspect of the coherence mechanism is described as individual specification, which considers if people are clear on what they need to do for the new model to become integrated.

The limited clarity contributed to fragmented activity, as there was not a clear agreement on the key components and activities comprising practice-based IPE. The prevailing feeling was that practice-based IPE remained fledgling in the curriculum:

The term 'two steps backwards for any one step forward' was used by one participant to describe practice-based IPE as it currently stands. Other team

members agreed, noting how much time and energy has been given to aligning timetables and the limited opportunities for practice-base IPE this has yielded to so far. [Field Note March 2019]

However, planning and progress was also influenced by practice education factors beyond PET control. For example, forward planning was stymied by the fact placements are being sought, withdrawn, and finalised until very close to placement start dates:

You can only plan so much in advance because even people tell us they are taking a student next year but that could fall through at the last minute.

[Interview 2]

Thus, there were significant challenges in planning for future practice-based IPE. However, there was also past practice-based IPE that could inform strategic planning and it is this aspect we next discuss.

Reflexive monitoring

Learning from previous endeavours is captured by the NPT mechanism of reflexive monitoring. This mechanism involves communal and individual appraisal of the new practice, to enhance implementation (Agreli *et al.* 2019). At an individual level, participants reviewed specific projects with those involved and documented these locally. This helped them refine what was and was not effective in terms of developing practice-based IPE. However, there was a concern that collective utilisation of these learnings to inform the future of practice-based IPE was limited:

That information sits with myself now because the other people have moved on ... we need to capture this learning from experience now if we're going to move this forward. [Interview 5]

The ever-present placement sourcing and support demands was a recurring factor which limited team opportunities for collective reflection:

During today's observation participants spoke about they know there is a lot of knowledge and experience dispersed among the group, but it is challenging to find the time and space to collate this and act on it. The group termed this 'developmental work' and differentiated it from 'operational work'. The demands of the latter limited opportunity for the former. [Field Note June 2019]

To address these issues, a dedicated practice-based IPE sub-group was established. Members included staff based at the university and clinical sites. This created an

opportunity for collective reflection. The following field note details how feedback from a site-based tutor led the PET to reflect on their role:

The group heard feedback about a project that was rolling over from one placement to the next at one placement site. This had been established by clinical tutors at the site and a PET member had given support and advice in setting it up. The group responded positively to this. There was discussion about the difference between projects developed within placement sites and those introduced from outside by the PET. They reflected on their experiences of limited sustainability of the latter. The overall conclusion was that projects developed within placement sites were more likely to continue as the educators on the ground have ownership and control of them. [Field Note June 2019]

By having an opportunity to reflect on practice-based IPE, past learnings and member experiences were utilised to take steps towards refining practice-based IPE planning and delivery. As such the PET role evolved to one of consultant for clinical educators, rather than directly developing or facilitating practice-based IPE. Thus, we next consider the relationship between the PET and clinical educators in implementing practice-based IPE.

Building partnerships

For practice-based IPE to become fully embedded, partnerships with clinical educators were key. We consider this theme through two further NPT constructs: cognitive participation (recruiting others for implementation of the new practice) and collective action (actions needed to make the practice work) (de Brún *et al.* 2016).

Cognitive participation

Interaction with clinical educators is core to the PET work of placement delivery. As such engaging this group is essential for integration of practice-based IPE. In NPT terms this is a mechanism known as cognitive participation. The PET noted that they had grappled with this over many years and felt that initial efforts may have lacked enough collaboration with clinical educators:

Initially the therapists [clinical educators] weren't involved ... I think that maybe afterwards the therapists felt that maybe they should have been more involved. [Interview 8]

Participants felt this approach contributed to the fact projects had not continued without PET involvement. This contributed to reconsideration of the PET role in delivering practice-based IPE.

My role has changed to be somebody who promotes and champions it [practice-based IPE] ... and encourages people to progress it themselves. [Interview 4]

While participants had reached this position via different and individual experiences, at the point of this research there appeared to be a consensus that the PET function was better conceptualised as supportive and consultative than directive:

At different times during the meeting three people used the term 'planting a seed'. This was in the context of a discussion exploring the PET function. There was consensus that their role is to generate awareness of practice-based IPE and how they can support clinical educators. [Field Note August 2019]

Participants identified specific strategies they could utilise to sustain clinical educator engagement with practice-based IPE:

When we're having our practice education conferences, getting back to those [clinical educators] and encourage them to submit so they know what they're doing is valued, not just by us but in a wider sense. I think those kinds of things make the people who are driving it more encouraged to continue. [Interview 4]

As such the PET had revised their role in implementation. They then needed to establish how they could make this approach of supporting practice-based IPE workable in practice. To explore this, we use the mechanism of collective action in the next section.

Collective action

Participants acknowledged that practice-based IPE originating within the placement site increases the workability of the practice for clinical educators, who may feel more skilled and confident implementing a practice developed internally than for projects developed outside the placement site. From a PET perspective, supporting internally developed practice-based IPE requires different skills and resources. In practice education, students are assessed using a national, uniprofessional competency assessment form. Each profession has its own national form. Participants noted that capturing student learning from diverse practice-based IPE using these tools was difficult:

The competencies are very grey. There is not a whole lot of depth to them. It would be nice to be able to capture, for everyone, interprofessional learning on

placement and evaluate that and look at the competencies, at the outcomes from it. [Interview 4]

As practice-based IPE activity became more diverse, with initiatives emerging across placement sites, ensuring students had similar levels of opportunity was a key consideration for the PET. Participants explored how they could address these issues in sub-group meetings, at one stage inviting a visiting lecturer with experience in practice-based IPE to a meeting:

During the meeting there was a lot of discussion about developing or adapting a tool to capture how many students had practice-based IPE experiences and what activities this involved following placement. The visiting lecturer reflected on what had worked well and less well in their setting. As an initial action it was agreed that named members would research known tools. [Field Note September 2019]

As the research concluded these were the key issues participants were wrestling with – how to meaningfully include practice-based IPE in student assessment, capture the full scope of practice-based IPE activity occurring, and ensure equitable student experiences. Overall, the findings illustrate the complex and dynamic process of normalising practice-based IPE.

5.5 Discussion

Placement experiences strongly influence students and their future practice (Weiss *et al.* 2019). Therefore, practice-based IPE opportunities are required to prepare students for collaborative working (Fraher and Brandt 2019). Yet, embedding practice-based IPE is a complex process, as was the experience at this school. While this research was occurring, practice-based IPE, although accepted, was not part of routine practice (May *et al.* 2007). In this section, we expand on participant experiences to generate recommendations for normalising practice-based IPE in practice education (Kreuter *et al.* 2004). However, practice-based IPE is a complex, multi-faceted endeavour that is influenced by context (Varpio *et al.* 2017). Therefore, applicability of recommendations is best determined by local stakeholders. That said, due to the theoretical influence of NPT, some recommendations may be applicable beyond practice-based IPE to other situations where educators seek to normalise a new and complex practice.

Participants reflected differing definitions of practice-based IPE, a common challenge across IPE (Olenick *et al.* 2010). It can be particularly difficult to clarify core features for practice-based IPE, as it can take many formats across a range of clinical settings (Reeves *et al.* 2016). An agreed broad working definition of practice-based IPE is recommended to develop a coherent IPE strategy. In reaching such a consensus, collaboration is required between those coordinating and those delivering practice-based IPE. In addition to the PET plans to monitor practice-based IPE post-placement, it would be useful to prospectively map what type and level of practice-based IPE is broadly feasible with placement partners. We are aware that this is in the context of limited clinical placement availability across healthcare professions (Taylor *et al.* 2017). However, advance mapping would allow the PET to develop a plan for practice-based IPE capacity per placement and how they may need to augment this to ensure students have comparable opportunities. As recommended by CAIPE, this type of shared planning and problem solving between the PET and clinical educators is beneficial for developing collaborative working relationships (Skinner *et al.* 2020), as well as shared ownership (cognitive participation) of practice-based IPE activities which supports sustainability (Gillespie *et al.* 2018). For example, if IPE opportunities cannot be facilitated for a group of students at identified placement sites, a member of the PET could facilitate case-based IPE tutorials for an interprofessional student group based on their clinical caseloads. In NPT terms this would activate the mechanism of collective action, with communication and skills sharing increasing the workability of practice-based IPE (Holtrop *et al.* 2016). In practical terms, delivery could utilise tele-health

platforms to overcome logistical barriers such as students being on placement at different sites (Novak *et al.* 2016).

A significant concern for participants was how to incorporate practice-based IPE meaningfully and equitably into student assessment, an issue reflecting global educator experiences (Anderson and Kinnair, 2016). Uniprofessional activity is prioritised in traditional assessment tools, with some authors suggesting this not only limits but discourages IPE (Skinner *et al.* 2020). However, as in many jurisdictions, educators must currently work within the constraints of these tools. One potential solution is a practice-based IPE portfolio, as it offers flexibility regarding educational activities used to achieve target outcomes (Domac *et al.* 2016). As this research highlighted, initiatives developed within placement sites offer greater sustainability than externally devised projects. Therefore, a flexible approach to evaluating learning is particularly beneficial.

Mapping portfolio activities onto professional competencies would be beneficial to enhance student and educator engagement (Skinner *et al.* 2020). Updating the relevant placement module requirements through the relevant academic regulatory channels of the university is recommended to further strengthen the place of a portfolio, or other innovations in assessment. This creates a requirement of completion for each student. Many programmes already have portfolio requirements, in which case it may be possible to adapt or add to the existing tool. Portfolios can be developed by students throughout their placements, evidencing the development of collaborative working skills during their overall course of study, a model which has been implemented in IPE at Dalhousie University, Canada (Dalhousie University 2020). While the portfolio should contribute to assessment of the identified placement competencies by clinical educators, students may benefit from PET input to support completion. For example, an interprofessional portfolio workshop each academic year, facilitation of which could be shared among PET members.

As well as monitoring the development of practice-based IPE and tracking activities, it is necessary to develop reflexive processes that collectively explore what worked or did not work and agreeing how this can be incorporated or avoided in the future (McHugh *et al.* 2020). As experienced in this research, normalisation of IPE is a lengthy process and often experiences setbacks (El-Awaisi *et al.* 2016). Therefore, it is important to have processes in place to optimise learning from setbacks and to build on successful projects. Incorporating practice-based IPE review timelines into the school quality review process would support integration of this activity. It can also be useful to learn

from experiences at other institutions. Linking with an experienced visiting lecturer provided guidance on potential next steps to participants in this study. As practice-based IPE is still at an early stage of development in many settings, sharing of knowledge and learning is particularly beneficial (Davis *et al.* 2018).

Strengths and limitations

This research is based on experiences at one school, which comparatively to other sites may be well-resourced in terms of practice-based IPE. Yet the core findings relate to how people manage innovations within complex, interconnected systems. Furthermore, as data collection, interpretations, and recommendations are theoretically informed, there is scope to apply these to other settings. Much interprofessional literature provides limited detail regarding methodological and theoretical constructs informing the study design (Institute of Medicine 2015). Thus, this theory infused research extends its contribution to overall IPE scholarship (Varpio *et al.* 2020). Data collection for this research was over a 10-month period, used multiple data collection methods, and was preceded by a 12-month period of site familiarisation. On one hand this added to the credibility of the research, due to increased access for observation and depth of data provided in interviews. Conversely, it challenged the researcher in terms of keeping sight of the overall research agenda and not aligning with particular viewpoints.

Reflexive journaling and debrief discussions mitigated this challenge.

5.6 Conclusions

This paper provides unique insight into the steps taken and challenges encountered at a school seeking to develop a sustainable model of practice-based IPE. Specific strategies are needed for practice-based IPE to become embedded in healthcare curricula.

Strategic planning and collaborative reflexivity can support normalisation of this model in practice education. Robust partnerships and collaborative working between universities and placement partners are also needed to sustain this complex model.

These conditions support normalisation of practice-based based IPE as a core aspect of practice-education, enhancing student and patient experiences.

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Chapter 6: [Paper 5](#)

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Authorship

Noreen O'Leary was the lead author for this paper, overseeing development of the research design, conducting all data collection, leading data analysis, data synthesis, and the writing and editing of the manuscript. Nancy Salmon contributed to refining the research design, preliminary data analysis, data synthesis, and the writing and editing of the manuscript. Amanda Clifford contributed to developing the research design, data synthesis, and the writing and editing of the manuscript.

Associated aims

Aim 4: To generate an account of key stakeholder perspectives on integrating practice-based IPE into healthcare curricula.

Aim 5: To propose data and evidence informed recommendations for integrating practice-based IPE into healthcare curricula.

Research contribution

The previous paper focused on participants who have a coordination role and illustrated how they realise and actualise practice-based IPE. It also signposted some issues that may be relevant for students and clinical educators. This paper included participants who deliver (clinical educators) and experience (students) practice-based IPE. This also moved the research beyond the school itself, to the clinical sites where placements occur and facilitated an insight into the 'real world' setting of practice-based IPE.

Reflexivity

I experienced a different dynamic during data collection for this research phase. I was observing and interviewing students and clinical educators. From the student perspective I was very aware that in terms of positionality I may be perceived as an authority figure or having some degree of influence with their educators due to being a PhD candidate and clinician. I constantly reiterated my research role during interactions to allay any concerns in this regard. At times I found the student privileging of uniprofessional education triggered feelings of frustration in me. I wanted them to see

the importance of collaborative practice as I did. I needed to actively remind myself that their priority was on becoming a qualified clinician in their chosen field. I was already at that stage and was coming from a different perspective. Openly discussing potential drawbacks of IPE helped manage this issue.

Interactions with clinical educators helped me fill in some gaps about the reality of placement based on the previous research phase. I realised how much the 'doing' is prioritised during placement as there is very little time for planning beyond the logistics. Having spent a long time immersed in the world of theory and IPE competencies I was surprised at the absence of these in the 'real world'. During this phase I also noticed educator participants refer to me using terms like 'IPE expert' and were keen to ask me questions about setting up practice-based IPE. This required careful management of expectations and challenged my own belief system. I wanted my research to be impactful and believed in sharing knowledge. Yet I did not want to influence what participants shared during interviews and observations by giving my own opinions. I negotiated this by noting questions during data collection and advising I would give them consideration. Following data collection, I shared literature or resources which were relevant to participant queries.

Fieldwork experiences also highlighted that practice-based IPE needs to reflect the authentic clinical environment. For example, students at an IPE tutorial were keenly aware that medics would be key contributors to the case at hand and were not represented at the tutorial. This drew my attention to the importance of cultivating broad-based engagement for practice-based IPE.

During the process of developing and writing this paper the global COVID-19 pandemic was unfolding. The exigencies of pandemic conditions reinforced to me the imperative for developing collaborative working skills, while also highlighting the vulnerability of practice-based IPE in a pressured healthcare system. As a result of the pandemic two planned and a number of potential data collection observations were cancelled. Thus, I did not feel the data set excluding further observations warranted description as ethnographic research. Rather it felt more authentic to describe this phase as a qualitative case study, albeit ethnographically informed.

6.1 Abstract

Background

Practice-based interprofessional education (IPE) is essential to prepare students for collaborative working. Pockets of practice-based IPE are integrated into healthcare curricula in some regions. Yet practice-based IPE is not globally valued as a key element of healthcare curricula. As students and clinical educators are key stakeholders, this study presents a case example of their experiences in a country where practice-based IPE is at an emergent stage. Their experiential knowledge generated important insights into how practice-based IPE is perceived. This learning can be applied, both locally and further afield, by those seeking to embed practice-based IPE in their placement curricula.

Methods

A qualitative case study was conducted at a school of allied health and partner placement sites in Ireland. Data collection comprised two participant observations, 13 interviews, and 12 document analyses. Inductive thematic analysis and deductive framework analysis, underpinned by activity theory and Hofstede's cultural dimensions, informed data analysis and interpretations.

Findings

Participants are grappling to establish the value of practice-based IPE, illustrated in three themes: clarifying the concept of practice-based IPE, mapping IPE activities, and diversifying interprofessionalism. First, ambiguous conceptualisation of why and how to implement practice-based IPE was identified. Highlighting how practice-based IPE improved patient care and safety created a clear rationale for implementation. It was also helpful to demonstrate how adaptations to existing practice education models, rather than entirely new models, could achieve high-quality practice-based IPE. Second, the positioning of practice-base IPE in the placement curriculum was unclear. Overt mapping of practice-based IPE activities onto learning outcomes within assessment tools enhanced its value within practice education. Third, varying levels of professional engagement were noted, perpetuating stereotypes. Creating diverse educator networks and embedding practice-based IPE in organizational strategy may incentivise engagement across a greater range of professions.

Conclusions

Implementing these recommendations could enhance the value of practice-based IPE and optimise student preparation for collaborative working. Practice-based IPE remains a complex model and the trajectory of embedding in healthcare curricula will differ globally.

Keywords: interprofessional education, activity theory, Hofstede's cultural dimensions, qualitative case study.

6.2 Background

Interprofessional collaboration (IPC) is necessary for optimal patient care and outcomes (Schot *et al.* 2019). Therefore, students require appropriate preparation to enter the workforce as collaborative-ready, patient centred practitioners. There are many ways of preparing students for IPC, subsumed by the umbrella term interprofessional education (IPE). IPE can be broadly categorised as classroom-based, simulated, and practice-based. Practice-based IPE requires students from two or more professions working and learning together at the same placement site (Morphet *et al.* 2014). Location at clinical sites provides unique learning opportunities (Chen *et al.* 2016) as students apply theory to practice (Oandasan and Reeves 2005), experience IPC first-hand (Finch 2000), and commence socialisation into clinical teams (Baltimore 2004; Egan and Jaye 2009). Indeed, healthcare professionals whose training included IPE cite practice-based IPE as the most meaningful IPE input in terms of clinical practice (Gilligan *et al.* 2014; Jones *et al.* 2020). However, understanding of student and clinical educator experiences as practice-based IPE becomes embedded in a curriculum is relatively limited. Therefore, it is critical to explore this process in depth, to advance integration of practice-based IPE and optimise student preparation for IPC.

There are challenges specific to integrating practice-base IPE that differ from those relating to classroom IPE. Beyond the well documented logistical complexities (Kent and Keating 2015), practice-based IPE involves tackling sensitive issues such as professional stereotypes and role boundaries in often demanding clinical settings (Leedham-Green *et al.* 2019) where patient safety and wellbeing are the primary focus (Egan and Jaye 2009). Educators at clinical sites are primarily practicing clinicians (Nicol and Forman 2014) and can sometimes lack educator specific training even uniprofessionally (Grace and O'Neill 2014; Rodger *et al.* 2008). IPE facilitation is perceived as a complex role for educators (Dickie *et al.* 2019) and targeted training is rare (Chen *et al.* 2016; Martin *et al.* 2017). Consequently, clinical educators may be reluctant to become involved in practice-based IPE. Additionally, all practice education must ensure students achieve competencies required by their professional or regulatory body (Joynes 2018). As such, practice-based IPE is a complex practice education model.

Furthermore, practice-based IPE occurs at the interface of education and frontline health services, both of which are influenced by the social and cultural context (Meeuwesen *et al.* 2009). Therefore, experiences of embedding practice-based IPE likely differ

internationally. For instance, interprofessional training wards at acute hospitals are well established in Scandinavian countries (Oosterom *et al.* 2019), while rural and remote healthcare activities are often reported in Australia (Walker *et al.* 2018). Geographical (Walker *et al.* 2019) and specific healthcare needs and resources (Eggenberger *et al.* 2019) likely influenced the approach taken in these regions. Globally, long-term funding for practice-based IPE is an on-going challenge (Kent *et al.* 2017) and many practice-based IPE projects do not extend beyond pilot or short-term initiatives (O'Leary *et al.* 2019). This has stimulated growing interest in relatively low resource activities such as case-based tutorials (Arnold *et al.* 2020; Brack and Shields 2019; Kent *et al.* 2020a). Currently, practice-based IPE is not cohesively integrated into healthcare curricula globally (Boshoff *et al.* 2020).

Theory provides a crucial anchor when seeking a nuanced understanding of how students and clinical educators experience this complex model (Greenhalgh and Papoutsi 2018). Activity theory is suitable for unpicking the interacting factors influencing practice-based IPE, as it focuses on how people engage within rule-governed systems and use tools to achieve objectives in real-life circumstances (Chu *et al.* 2020). During practice-based IPE, distinct student and clinical educator activity systems temporarily coalesce (O'Keefe and Ward 2018). Within and across these activity systems tensions can arise, for example between differing objectives (O'Keefe and Ward 2018) ([Appendix 1](#)). Given the seismic changes occurring in health and education spheres globally due to the COVID-19 pandemic (Cleland *et al.* 2020), it is perhaps more crucial than ever to analyse how national socio-political contexts intersect with implementing changes to healthcare education models such as practice education (Bonello *et al.* 2018). Hofstede's cultural dimensions theory (Hofstede *et al.* 2010) offers one interpretation for how national culture can influence values and behaviours (Bonello *et al.* 2018). Hofstede posits that as people are exposed to national cultures from birth, these traits are more ingrained than workplace culture, which is more transient and acquired later in development (Hofstede 2011). Cultural trends considered by Hofstede include attitudes to democracy, individualism or collectivism, tradition, and achievement as well as long- and short-term planning and enjoyment of life (Hofstede *et al.* 2010) (Further information can be found in [Appendix 2](#)). Regarding practice-based IPE this theory can contribute to understanding how and why IPE has evolved differently across countries.

The aim of this research was to develop an in-depth treatise of student and clinical educator experiences while seeking to embed practice-based IPE in the curriculum. To this end the following objectives were developed:

- To document the practice-based IPE experiences of students and clinical educators affiliated with one university.
- To explore the context in which these activities developed.
- To develop recommendations supporting sustainability and growth of practice-based IPE activities with applicability beyond the research site.

As such this paper will contribute to the discussion on how to embed practice-based IPE as a valued aspect of health professions education, providing signposts for stakeholders including clinical educators and accrediting bodies.

6.3 Methods

This qualitative case study facilitated in-depth exploration of practice-based IPE within the parameters of a specific case (Yin 2014), consisting of practicum sites connected to an Irish university. Five allied health professional qualification programmes are offered by the university. Students attend diverse placements including hospital, community care, and rehabilitation sites. This research forms one phase of a larger doctoral study at the same site. A previous study has explored the experiences of university affiliated educators involved in developing and coordinating practice-based IPE (O’Leary *et al.* 2020). The Standards for Reporting Qualitative Research were used to report key features of the research process (O’Brien *et al.* 2014) ([Appendix 3](#)). Ethical approval was provided by the university and placement site Research Ethics Committees. Examples of participant information and consent materials can be found in [Appendix 4](#).

Data collection

Data collection occurred from November 2019 to April 2020. However, the foundations for this phase, including familiarity with placement structures and access to potential gatekeepers, were in place from previous research at the site, which began in 2017. Methodological triangulation was used to enhance data collection validity (Fusch *et al.* 2017) and credibility of findings (Grant 2018).

Observations

Participant observations were conducted to allow the researcher to develop a first-hand and socially contextualised understanding of practice-based IPE (Brockmann 2011). Using a project specific template ([Appendix 5](#)), the first author observed interprofessional tutorials (n=2) over five hours. Participants included seven clinical educators and 17 students. Five professions were represented - nursing, occupational therapy, speech and language therapy, physiotherapy, and radiography.

Interviews

Semi-structured interviews (n=13) were carried out by the first author to facilitate exploration of individual experiences and perspectives (Morgan-Trimmer and Wood 2016). Interview length ranged from 26 to 42 minutes, with a median length of 33 minutes. Participants were clinical educators (n=4), current students (n=7), and recent graduates (n=2). Four professions were represented - occupational therapy, speech and language therapy, physiotherapy, and dietetics. Interview guides were informed by observations, literature, and theory ([Appendix 5](#)).

Document Analysis

Relevant documents (n=12) were analysed in conjunction with observations and interviews (Grant 2018) to facilitate comparison of stated policy and guidelines with participant experiences (Gabbay 2004) and to generate further lines of inquiry.

Documents included profession-specific competency forms and interprofessional education resources.

Data analysis

Observation, interview, and documentary data were imported into NVivo 12.0 software to support data management (Bonello and Meehan 2019). Thematic and framework analyses were used to interpret data (see Figure 6.1). Analytical pluralism was adopted to achieve more nuanced data interpretations than would be achieved through use of either approach singularly (Coyle 2010) and to limit interpretive bias (Blair 2015).

Thematic analysis was used to inductively code and interpret participant data and develop initial themes (Braun and Clarke 2019). A deductive framework analysis was then used to analyse participant data using *a priori* codes (Gale *et al.* 2013) from activity theory (Engestrom 2000) and Hofstede's cultural dimensions (Hofstede *et al.* 2010). Initially, the first and second author individually coded a subset of three transcripts. This enhanced the comprehensiveness of the initial inductive coding framework and refined the application of the theory-based deductive framework. Sample data analysis can be found in [Appendix 6](#). The approaches chosen were philosophically compatible (Clarke *et al.* 2015), as neither is aligned to a specific epistemological perspective and both focus on generating themes (Braun and Clarke 2006; Gale *et al.* 2013). Reflexive memoing (Probst 2015) along with ongoing author and advisory panel discussions enabled exploration and resolution of divergent interpretations (Gale *et al.* 2013).

**Observation, interview and
documentary data**

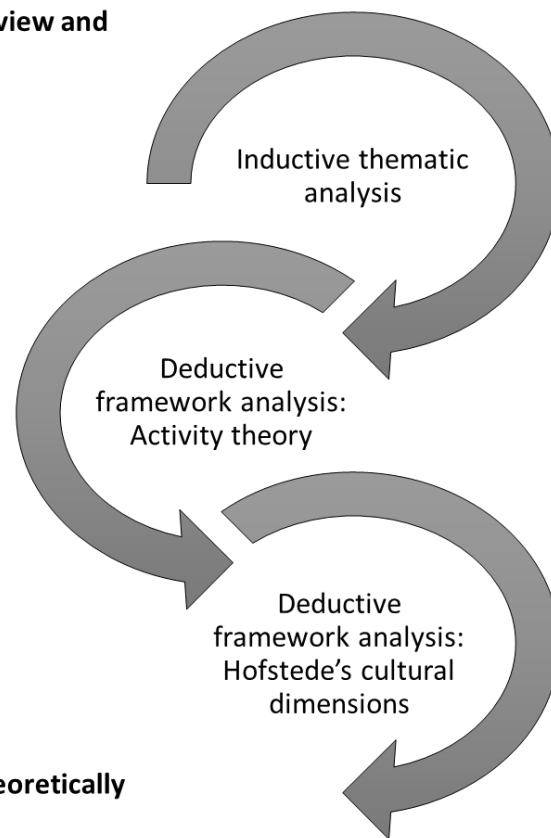


Figure 6.1:Analytical framework

6.4 Findings

We begin this section by framing the context in which participants reported they experience practice-based IPE. Students from each programme typically complete four blocks of placement. Between placements, students complete five interprofessional academic modules, designed to establish foundations for collaborative working. For example, shared lectures on topics such as professional documentation, infection prevention and control, and ethics. Students subsequently engage in interactive interprofessional modules where they develop interprofessional management plans for hypothetical complex cases.

Operationally, placement timetables were deliberately aligned to maximise opportunities for practice-based IPE. Students engage in practice-based IPE at any stage of their programme. The experiences included in this study captured all placement stages, from initial to final placements. The content and format of practice-based IPE is decided locally by clinical educators, guided by clinical needs and facilitation resources available at the placement site. Placement handbooks outline opportunities for practice-based IPE and signpost clinical educators to useful resources, such as a practice-based IPE resource pack developed by the university practice education team. The professions involved in practice-based IPE depends on availability at the site at the time and agreement by programme educators to facilitate involvement by their students.

Participant data reflected a situation of fledgling practice-based IPE at an early stage of integration into the practice education curriculum. Participants are grappling with cultivating the value of practice-based IPE, represented by three key themes (Figure 6.2):

- Clarifying the concept of practice-based IPE
- Mapping practice-based IPE activity
- Diversifying interprofessionalism

In activity theory terms, these themes reflect sources of tension within the systems of practice education as participants sought to embed practice-based IPE.

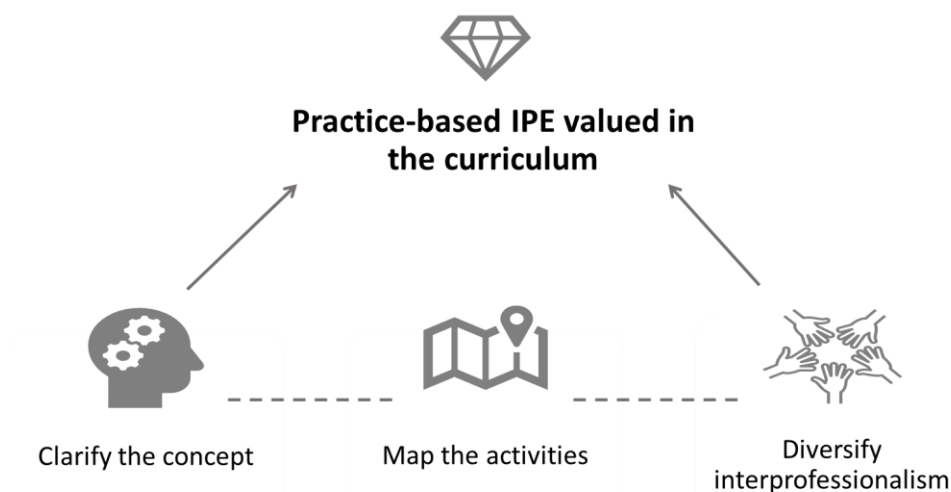


Figure 6.2: Developing the value of practice-based IPE

Clarifying the concept of practice-based IPE

At a conceptual level, participants reported equivocation regarding two key issues, the rationale for practice-based IPE and the process of establishing it. Both students and educators experienced uncertainty about why practice-based IPE was needed:

I was baffled as to why it's required, or who these people are. [Student 7]

Some of the nurses didn't even know what IPE was. [Clinical Educator 1]

For example, educators reported that many colleagues perceived practice-based IPE as a purely educational activity and did not link it to improved clinical practice and patient outcomes:

The one thing that made [the nurses] open their eyes a little bit was when we said, "No actually there's evidence, they say it benefits patient care and patient outcomes" ... it wasn't just, 'all students think it's great' ... this is what the benefit is. [Clinical Educator 1]

In a similar vein, when students experienced practice-based IPE it deepened their understanding of its contribution to patient care:

I think now I have an understanding of how important interprofessional working is, I could advocate for that a bit more, having seen it. [Student 3]

Activity theory highlights that activity is objective driven. Activity that aligns with core objectives of healthcare is likely to be perceived as valid. As in this example, spotlighting the impact of practice-based IPE on improved patient safety and care added validity.

Students and educators expressed concern that practice-based IPE was resource intensive, creating additional work for clinical educators and reducing student time for uniprofessional activity.

I think it would be a mistake to make it [IPE] a big job because I think it would turn people off and it feels forced then, when it should just be kind of a case discussion. [Clinical Educator 1]

Indeed, feedback from graduates and educators who experienced practice-based IPE illustrated that small-scale activities, building on existing clinical activity provided impactful learning opportunities. As a case example, during an acute hospital placement two graduates each worked with a student from another profession, to jointly assess a patient, develop an interprofessional management plan and present their findings to their clinical educators:

What we did for our project, it wasn't overly complicated. It had nice structure to it, but it wasn't complicated. [Graduate 1]

The structure came from a template contained in the IPE resource pack provided by the university. Key features of this template were sharing information about each profession, negotiating, and reflecting on learning about working with other professions. Graduates felt learning would not have been as impactful without this tool:

If it was just passively going in, observing each other without really thinking about what we were trying to get out of it. [Graduate 2]

From the activity theory perspective, the template provided a tool for students to divide labour in pursuit of the shared objective of patient care while also prompting critical reflection. Small-scale activities such as this can lead to meaningful outcomes, in terms of student's interprofessional interactions. For example, clinical educators and students experienced increased interprofessional communication following a two-hour interprofessional tutorial:

I actually had a number of students approaching me ... and say, "Can I ask you a question about this patient?" ... I don't think she'd have approached me without having done those sessions. I haven't come across that before. [Clinical Educator 2]

Students themselves reflected that it was working together during tutorials which facilitated future communication and interactions:

I was less cautious about approaching the other professions, so I really noticed that actually after the IPE tutorial ... it kind of broke down the barrier. [Student 5]

Mapping interprofessional activity

In this theme we explore how practice-based IPE is currently mapped onto placement curricula. Overall students and educators asserted that while IPE was important, their priorities, and thus activity, during practice education is guided by the competency forms on which students are graded:

On placement, you're being marked, you're being graded and it's worth a lot to your degree. [Student 2]

There was a prevailing sense of ambiguity about the place of practice-based IPE in the placement curriculum and assessment:

I think it is kind of an unwritten rule that on your placements you will do sessions with other professionals [Student 8]

Each profession is assessed using a different competency tool. Most competencies refer to unprofessional activities with some lending themselves to practice-based IPE. However, the wording of the latter competencies allows considerable interpretative latitude, for example:

*Contributes effectively as a team member; build collaborative working relationships (Occupational therapy competencies from Bossers *et al.* 2007)*

This was confirmed by student recollections of variable practice-based IPE experiences regarding type and level of interprofessional collaboration:

My first placement wasn't a multidisciplinary setting ... [so] you were graded on your communication with everyone else ... even with the receptionist and everybody else in general, they looked at that as a whole. [Student 4]

The most common practice-based IPE opportunities were acute placement sites, supported by co-location of professions and patient needs. IPE took the form of interprofessional tutorials, case presentations, and joint assessments. Many students identified missed opportunities for practice-based IPE:

On my last placement, there were other students there ... I think there was one day a week we were in the same building ... even if there was a half an hour a

week just set aside for group talk or something like that ... talk over or plan something. [Student 8]

Across the board there were variable interpretations as to how interprofessional activity informed student assessment. For example, the following two students reported contrasting experiences of the same practice-based IPE activity and its link to their assessment:

The practice educator said before the sessions you're not being assessed on this.
[Student 5]

The educator was observing [the tutorial] and she even drew back to that when we were completing the form then that she'd seen me recognize the role of the other professionals. [Student 3]

To begin addressing these inconsistencies clinical educators reflected that making explicit links between practice-based IPE and professional competency assessment strengthened alignment between the activity and assessment and created a clear rationale for the activity, thus enhancing its value:

We're very clear and we can tell them beforehand, these are the competencies, that it's going to help you to progress in ... There's a good reason why we're asking you to do this. [Clinical Educator 3]

Participants acknowledged that a lack of guidance from higher level bodies, such as the professional regulator, regarding practice-based IPE contributed to ambiguity:

CORU [professional regulator] sets clinical expectations for students. So maybe that's something to think about ... clinical competencies that specifically relate to working as part of a team or something that you could demonstrate that in [interprofessional] sessions. [Student 5]

Indeed, from the lens of activity theory, articulating practice-based IPE expectations more explicitly within the regulatory and competency tools mediating placement activity could support integration of practice-based IPE. Moreover, clearly mapping interprofessional activities onto competencies increases clarity about the function of the activity and the intended results. Maximising clarity is a useful approach when introducing any new practice. This strategy is especially beneficial in countries where uncertainty avoidance is culturally important. This in turn may increase the perceived value of practice-based IPE.

Diversifying interprofessionalism

We found that involving the full range of professions in practice-based IPE is challenging. Both students and educators noted variable professional involvement:

[It's] dependent on people doing it out of the goodness of their hearts and their interest. [Clinical Educator 4]

We don't have any collaboration with medics. [Student 5]

Thus, involvement across professions relies on individual educators rather than being an integrated expectation across practice education:

A medic involved in the medical school here, he was really keen on it but then he left. [Clinical Educator 3]

The absence of certain professions may leave professional stereotypes unchallenged. For example, medical students or educators were not involved in interprofessional tutorials observed for this research. During a group activity to develop a patient care plan one participant commented:

Then the medic comes in and says discharge. [Interprofessional tutorial observation 1]

The implied meaning was medics override other professions and the group response of laughter, and head nodding indicated agreement with this perspective. In their absence, the 'us/them' stereotype regarding one profession was perpetuated between other professions. Furthermore, student reflections highlighted that it was collective participation in practice-based IPE activities that established communication bridges with students from other professions:

I never asked a question to one of the medical [students]. I don't know if them being at the interprofessional sessions would have made them seem like real people ... they were in the same room at lunch, they're in the same building, but I never talked to them. [Student 6]

Without a guided opportunity to initially engage with other professions, shared presence in clinical and social spaces did not translate to interprofessional communication and working.

Educators noted there can be a hesitancy to become involved if IPE is perceived to be the property of specific professions or people:

If it's all coming from us then people are always going to be a bit suspicious ...

Why are they doing this now and what's the agenda here? [Clinical Educator 2]

In terms of activity theory, there appeared to be poorly developed communities to support practice-based IPE. While practice education staff at the university are a clearly defined unit, this differs at clinical sites. Educators work within their own professions, links with educators in other professions are developed by chance between individuals:

I met with X and she was very keen, like myself, so we decided we'd do it [IPE] and we did. [Clinical Educator 3]

Participants felt that innovations such as practice-based IPE would be perceived as having greater value if initiated and supported by management within the healthcare organization:

We're just two tutors. Whereas, if someone said, "Oh actually, we're the new managers in student education in the hospital" ... then everyone is like, "this is someone who maybe can get us things or get stuff done for us" ... I think if you're sending an email from a person like that, at least there's a bit of buy in. [Clinical Educator 1]

Viewing this through Hofstede's cultural dimensions of individualism and achievement orientation, if educators can see the benefit of involvement to their profession within their organization they may be more positively predisposed to involvement. As such integrating practice-based IPE as an organizational priority may be advantageous in promoting practice-based IPE as a valued activity across professions.

Based on the findings reported above, Figure 6.3 provides an overview of how practice-based IPE can attain greater value at clinical sites and thus become more embedded in practice.

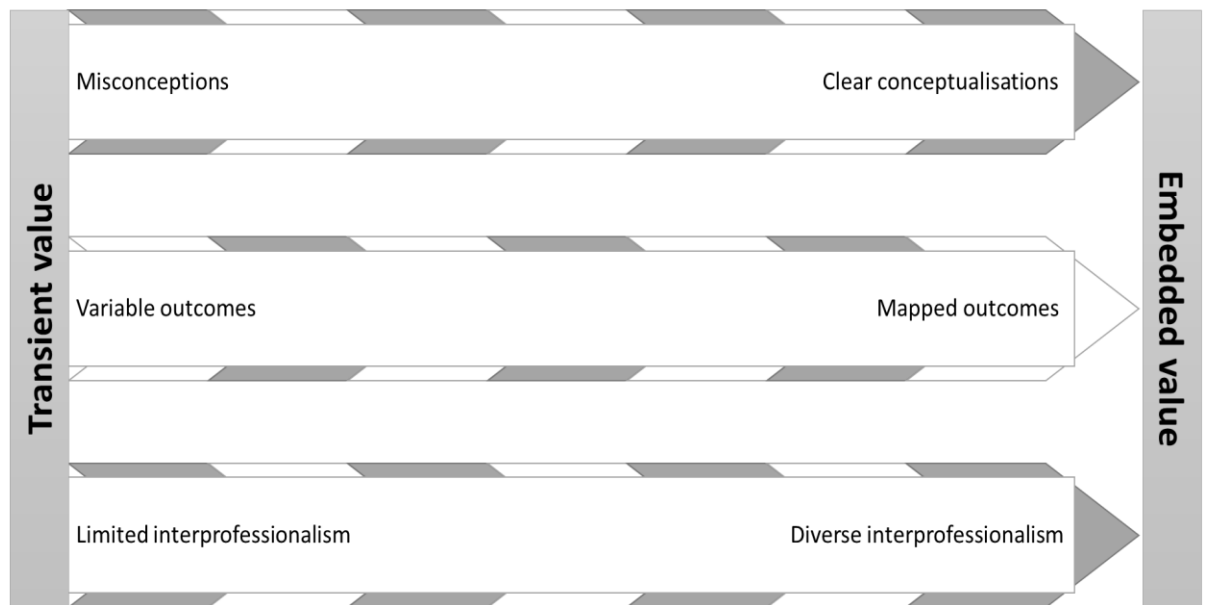


Figure 6.3: Factors influencing value of practice-based IPE

6.5 Discussion

Practice-based IPE offers a powerful opportunity to prepare students for future collaborative practice (Gilligan *et al.* 2014). Nevertheless, development of practice-based IPE lags behind classroom and simulation IPE (Simpson 2009) and requires a firmer footing in healthcare curricula (Hammick and Anderson 2009). This study identified conceptual clarity, mapping of IPE activities, and interprofessional diversity as key features of embedding practice-based IPE. Drawing on these findings we make recommendations to enhance the value of practice-based IPE in clinical settings. The goal is not to develop a universal practice-based IPE model. This is neither practicable nor desirable given the inherent variability across placement sites (Thistlethwaite 2015). Rather, learning from experiences thus far can inform future practice-based IPE initiatives and clarify the hallmarks of embedded practice-based IPE in healthcare curricula.

In this study practice-based IPE primarily occurred at acute sites, mirroring international trends (Boshoff *et al.* 2020). Physical co-location of students at these sites, in conjunction with the diverse clinical needs among patients likely supports practice-based IPE. However, development of practice-based IPE at the level of existing primary healthcare sites could materially extend capacity and scope of practice-based IPE (Weller-Newton and Kent 2021). Moreover, considering international aims to optimise community-based care (Mulvale *et al.* 2016), it is timely to develop opportunities for community practice-based IPE. While co-location with other students can be difficult to achieve at community sites, activities such as interprofessional case discussions could be conducted with students at other locations using secure communication platforms. During the COVID-19 pandemic, healthcare educators developed greater facility with online platforms (Hofmann *et al.*) and positive outcomes in terms of IPE are emerging (Kent *et al.* 2020b).

Clarifying why and how to implement practice-base IPE enhances its perceived value. Maintaining patient care and safety is a key activity objective for clinical educators and students. Therefore, activity that is framed as supporting this objective is likely to be perceived as having greater value. To this end practice-based IPE may benefit from a greater focus on its role in improving patient safety and quality of care (Grace 2020), in addition to the educational benefits as this is an objective with high value for healthcare staff and students. A common misconception reported was that practice-based IPE requires novel, time-intensive activities. However, our findings indicate that brief

activities such as interprofessional tutorials or a joint assessment session with appropriate resources to support interprofessional learning can have a meaningful impact. This aligns with recommendations that practice-based IPE is more sustainable if it can be achieved efficiently without requiring substantial resource allocation (Jackson and Bluteau 2009). Applying the cultural lens, initially adopting small-scale projects may address hesitancy round moving away from traditional models (uncertainty avoidance).

Participants in this study noted that '*passive observation*' of other students would have been less impactful than activity guided by the interprofessional observation template, which focused their attention. This echoes previous graduate feedback that effective interprofessional learning during placement needed structure and focus (Gilligan *et al.* 2014). Consequently, two key features are extrapolated for educators seeking to develop sustainable practice-base IPE. First, liaise with other educators to consider what reasonable adaptations could be made to support authentic IPE opportunities during student's placement day. Culturally, this can allay concerns regarding relinquishing established placement practices (uncertainty avoidance) whilst ensuring activity is meaningful for both students and patients. Second, utilise appropriate tools to guide and capture learning from these activities. While templates from a range of countries are available (O'Keefe *et al.* 2015), developing or adapting tools in conjunction with clinical educator colleagues and the placing university can ensure alignment with locally available opportunities and assessment tools. This can evidence the learning gained from practice-based IPE in real time. Pedagogically, guided activity and reflection creates a robust learning experience and may be particularly beneficial in cultures where there is a preference for achieving outcomes relatively quickly (short-term orientation).

Currently the link between practice-based IPE and learning outcomes is tenuous, as competencies relating to practice-based IPE are broadly framed. Placement providers do require flexibility to deliver practice education in line with specific programme requirements and local capacity. However, ambiguous phrasing of expectations can lead to a policy-practice chasm between what is perceived to be occurring based on formal documents and what is actually happening in practice (Miller and Paradis 2020). The danger with this situation is that complacency may set in, with the rhetoric of practice-base IPE in the absence of meaningful integration into curricula. Based on current research it is recommended that dedicated practice-based IPE competencies and

guidelines are developed. While this would require collaborative work and national level agreement by regulators, higher educational institutions, and placement providers, it would represent significant progress in embedding practice-based IPE in healthcare curricula. Embedding detailed expectations in documents with regulatory approval may help educators justify this activity (Ginsburg and Tregunno 2005).

Most IPE educator research to date has focused on university faculty (Darlow *et al.* 2017; Lindqvist and Reeves 2007). However, clinical educators represent a more diverse group (Norman and Dogra 2014). They continue to hold core clinical roles and are not centrally organised as an educational team. Developing clinical teaching teams introduces the idea that educators across professions could contribute to student education (Stalmeijer 2015), promoting educator networks at clinical sites. This may help address the issue of reliance on individuals or small groups of champions for practice-based IPE, creating a community of educators who can share the division of labour. Involvement of organizational leadership in developing these networks could provide essential support for increasing visibility and status of practice-based IPE. In practical terms offering interprofessional facilitation training would support educators to work with students from other professions (Chen *et al.* 2016), while also evidencing organizational investment and value in practice-based IPE. Furthermore, placement sites often host students from different institutions, which may facilitate opportunities for inter-institutional practice-based IPE (McKinlay *et al.* 2020). While this would require agreement at a national level between host universities and placement providers, it may broaden opportunities for practice-based IPE and diversity of professional involvement (McKinlay *et al.* 2020). Initially, convening an inter-institutional, interprofessional steering group is recommended, with student, university, regulatory, and placement-provider representatives. This group could develop governance guidelines and support an initial action plan for trialling this type of practice-based IPE (Flood *et al.* 2014).

Beyond the level of individuals and local placement sites, national cultural preferences can shed light on how practice-based IPE may be perceived and valued (Bonello *et al.* 2018). This in turn may help tailor the approach to integrating practice-based IPE on a country-by-country basis. In this research adapting existing practice education activities was preferred over introducing wholly new models for practice-based IPE. Hofstede reported that Irish culture tends to prefer normative and traditional ways of operating. Similarly, Bonello and Morris (2020) considered the introduction of IPE to Maltese healthcare curricula through the lens of Hofstede's cultural dimensions. They found that

participant data reflected the national preference for uncertainty avoidance, which was useful to account for when implementing IPE. While data from individuals or groups cannot be assumed to represent overall culture (Baumann *et al.* 2008) and cultural tendencies should not be perceived as predictive (McSweeney *et al.* 2016), they can draw attention to less visible factors impacting the integration of models such as practice-based IPE across countries (Morrow *et al.* 2013).

Limitations in the breadth of data from which recommendations were generated warrants consideration. Educators were from one clinical site and student experiences of practice-based IPE was primarily at this site. There did not appear to be factors significantly differentiating this site from typical healthcare placement sites. However, considering the cultural research orientation it cannot be discounted that site specific or local factors were influential. The context of the study allowed for immersion in staff and students experiences and detailed analytical consideration of embedding practice-based IPE, which is appropriate for a case study. Two other sites were to be included but this was not feasible due to the COVID-19 pandemic. Subsequent studies could build on this research to include other acute and community sites, to develop a comprehensive profile of practice-based IPE, and to understand core features required for establishing culturally relevant practice-based IPE. At the time of writing the ongoing COVID-19 global crisis has highlighted the need for a flexible and collaborative workforce (Davis *et al.* 2020). However, it does not automatically resolve pre-existing challenges and may perpetuate some issues (Ellaway *et al.* 2020). Regarding practice-based IPE, there may a risk of reverting to uniprofessional silos to achieve perceived core uniprofessional competencies. Future planning for practice-based IPE may require even closer collaboration with placement providers.

6.6 Conclusions

Practice-based IPE offers authentic opportunities to develop collaborative working skills (Finch 2000). This paper draws on student and clinical educator experiences to offer recommendations for enhancing the value and sustainability of practice-based IPE. Clarifying the concept of practice-based IPE, clearly mapping activities onto measurable outcomes, and developing diverse educator networks would support embedding of this model and add to its value. Prevailing local and national cultures should be considered when developing implementation strategies (Bonello and Morris 2020). Crucially, impactful practice-based IPE does not necessitate overhauling practice

education. Rather, thoughtful and explicit adaptations to existing practices can lead to meaningful outcomes for students and sustainable models of practice-based IPE.

Abbreviations:

Interprofessional education: IPE; Interprofessional collaboration: IPC

Ethics approval and consent to participate

Ethical approval was received from the Research Ethics Committees of Mid-Western Regional Hospital, Health Service Executive (Approval number 099/19) and the Faculty of Education and Health Sciences University of Limerick (Approval number 2019-09-03). Formal written consent was obtained from all participants.

Consent for publication

Participants consented to non-identifying data being included in publications.

Availability of data and material

The corresponding author, Noreen O’Leary, can be contacted with queries relating to data. The datasets (observational notes and interview transcripts) are not publicly available to maintain participant privacy.

Competing interests

The authors declare that they have no competing interests.

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Chapter 7: [Discussion](#)

Associated Aim

Aim 5: To propose recommendations for integrating practice-based IPE into healthcare curricula, highlighting the unique contribution that this body of work makes to practice and knowledge of practice-based IPE.

7.1 Introduction

The over-arching aim of practice-based IPE is to prepare students for collaborative practice (Gilbert 2014). Despite the burgeoning body of evidence supporting this model of practice education, integration in healthcare curricula is in its infancy (Brewer and Flavell 2020). However, the need for collaborative practice is evolving at an unprecedented rate (Schot *et al.* 2019), expedited by the COVID-19 pandemic (Donnelly *et al.* 2021). From the perspective of practice-based IPE this has two key implications. First, practice-based IPE urgently needs to be integrated across healthcare programmes, ensuring all students can develop collaborative working skills prior to graduation. Moreover, practice-based IPE of today needs to prepare students for the collaborative practice of tomorrow and beyond (Hodson 2020). Therefore, sustainable and agile practice-based IPE is required.

7.2 Research overview

The aim of this body of work was to explore how theory can contribute to the advancement of sustainable practice-based IPE. A qualitative metasynthesis (paper 1) identified key challenges to practice-based IPE. These included the difficulty of navigating interprofessional roles, variable leadership engagement, and limited use of theory to inform practice-based IPE. From 41 practice-based IPE studies included in the metasynthesis, over half (26) lacked explicit theoretical underpinnings. Of the fifteen studies with a theoretical framing, theory directly informed the educational practices in five (Anderson *et al.* 2010; Anderson and Thorpe 2010; Freeth *et al.* 2001; Kinnair *et al.* 2012; Koskinen and Äijö 2013), otherwise theory was used as a researcher tool. To explore applicable theories for this and other research, a scoping review was completed (paper 2). Of 32 studies employing organisational and systems theories, only three involved practice-based IPE (Brewer *et al.* 2017; Kent *et al.* 2016; Teräs 2016). This review also revealed that the process of theory application within research was highly variable. Indeed, while the review had identified potential theories for this research, it

had not clarified researcher questions about how to select specific theories and use them in practice. As little guidance was available on this topic, paper 3 was written to provide a model for researchers seeking to apply theories to interprofessional research. During the original research phase (papers 4 and 5), this theoretical model was adapted and applied. As such, papers 4 and 5 demonstrate the application, and value, of theory to practice-based IPE research. Informed by theory, key challenges to advancement of practice-based IPE were synthesised from papers 4 and 5. These challenges are captured by the concepts of curricular pathways and interagency partnerships. Grappling with these issues is an ongoing challenge for those involved in practice-education. These findings also align with previous research (Boshoff *et al.* 2020; Reeves *et al.* 2016), suggesting that the experiences at this site echo those of others. Furthermore, observations, interviews, and document analysis underpinning papers 4 and 5 did not reveal theory as a tool accessed in the design and delivery of practice-based IPE. In practice, and echoing the common global situation, practice-based IPE has primarily evolved on a pragmatic footing (Clark 2006).

Currently, theory is not a well-integrated feature of practice-based IPE. While often perceived as an optional consideration, there are substantial drawbacks to not applying theory to practice-based IPE. For example, relevant group learning or sociocultural theories may help explain why a particular educational experience is not working as intended. Data in this PhD shows that educators rely on pragmatic knowledge of collaborative practice to address challenges in practice-based IPE. While experience holds value, adding a theoretical lens would enhance the explanatory power of these experiences and optimisation of future practice-based IPE. As ineffective or negative IPE experiences can lead to or reinforce negative perceptions of collaborative practice (Hudson *et al.* 2016), it is important to optimise experiences as much as possible.

Theory is a tool we can use to reduce the risk of negative outcomes. For instance, theory may prompt consideration of issues relating to power and hierarchy in educational design (Cohen Konrad *et al.* 2019). This also highlights the benefit of using theory prospectively from the outset of developing practice-based IPE. When theory is currently used, it is most typically applied retrospectively (Lynch *et al.* 2018). While this can help inform future planning, prospective theory use may help avoid pitfalls and result in maximally effective learning opportunities (Clark 2006).

Considering the current and future challenges facing practice-based IPE, it is contended that theory needs to feature in the development of practice-based IPE. While authors

such as Roberts and Kumar (2015) spotlight specific theories relevant to practice-based IPE, they do not address the issue of how to select and apply theory. If researchers and educators do not have a process to guide theory selection, there is a risk of inappropriate theory selection or in many cases a lack of theory use. Having identified this significant gap in the interprofessional literature, the concept for paper 3 was conceived. The process outlined in paper 3 provides practical guidance for researchers and educators, deliberately articulating what is often left implicit when applying theories. Uniquely, guidance for theoretical layering is outlined, whereby multiple theories are used to understand a phenomenon and related challenges. When one theory cannot fully address the complexity of a phenomenon, as is typically the case, use of multiple theories is appropriate (Samuel *et al.* 2020). As seen from paper 3, and the reflexive sections preceding papers 4 and 5, theoretical layering may be a valuable strategy to employ when developing and evaluating practice-based IPE. Building on the theoretical stance of paper 3, key findings from this research are now considered from a range of theoretical perspectives, followed by consideration of how theory can be made more accessible within practice-based IPE, with a view to increasing theory use in practice. Informed by the ecological systems theory of Bronfenbrenner (1986), Figure 7.1 was created to illustrate the layered approach theory use can take in practice. Applying this model demonstrates how theory can be used to design curricular pathways for practice-based IPE. In this instance, this level is conceptualised as the micro or innermost level. Moving outwards to the meso level, where systems interconnect, a range of theories can be used to develop interagency partnerships for practice-based IPE. The outermost layer, the macro layer, represents the aim of theory infused practice-based IPE across the research and practice landscape. Theory selection was guided by the model developed in paper 3, accounting for the need to choose theories which could meaningfully address the issues and which could be layered effectively.

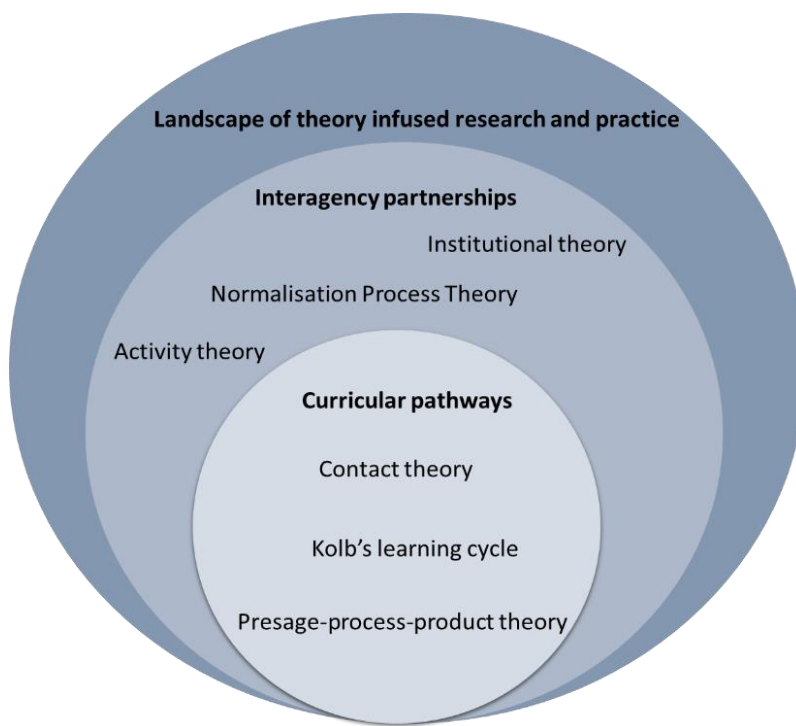


Figure 7.1: A theoretically infused model of practice-based IPE

7.3 Interpretation of key findings

Curricular pathways

In many healthcare programmes, including this case study site, the practice-based IPE components of the curriculum (learning activities and outcomes) are not clearly defined. Participants reported this led to a situation where practice-based IPE was identified as vulnerable to competing priorities and reliant on goodwill for continuation. As noted by Anderson *et al.* (2016) this can lead to fragmented IPE development, both for students and the institution. This is concerning because practice-based IPE is the mechanism by which students begin collaborating in practice (Fraher and Brandt 2019). In the absence of dedicated and well-integrated practice-based IPE experiences, student readiness for collaborative practice following graduation can lack comparable baselines. While a small number of institutions such as the University of Leicester have an integrated curricular practice-based IPE strand (Anderson and Lennox 2009), many institutions lack a defined and sustained practice-based IPE pathway (Teodorczuk *et al.* 2016). Therefore, a key priority is ensuring practice-based IPE expectations and outcomes are clearly defined within the curriculum. However, this is not without challenges. Participants in papers 4 and 5 highlighted that practice-based IPE needs to strike a difficult balance, offering enough flexibility to ensure it is feasible and sustainable for

clinical sites while ensuring students have reasonably comparable experiences to ensure assessment is equitable and learning is captured in meaningful ways. This finding is considered through a suite of theoretical lenses to illustrate how theory can help address this issue.

The presage-process-product theory (Biggs 1993) supports development of a clear curricular pathway. This theory encourages users to consider contextual factors influencing learning (physical space, regulatory requirements), the learning activities that will be undertaken, and the intended outcomes relevant to collaborative working. Users are prompted to address questions about what activities are feasible at their site and how activities will be facilitated and evaluated. When considering how to facilitate student learning, Kolb's learning cycle (Kolb 1984) can be beneficial, as learning is embedded in a process of action, reflection, and feedback. Practice-based IPE by its nature involves bringing different professions together. Professions have different histories and patterns of interactions with each other, as well as educational priorities. These factors influence engagement with practice-based IPE and require consideration when developing curricular pathways for practice-based IPE. Theory can be a useful tool to use when considering such issues. Contact theory (Allport 1954) considers the factors in addition to contact which influence outcomes during shared experiences such as practice-based IPE. For example, issues relating to status differences between participants and meaningfulness of the activity for different groups (Hean and Dickinson 2005). Adopting theories such as these would facilitate well-considered and contextually relevant integration of practice-based into the curriculum, supporting the likelihood of sustainability. This would represent a move forward from the current situation of a theory-practice divide, to one of theoretically infused practice.

Interagency partnerships

Practice-based IPE is not a purely educational model, occurring as it does in clinical settings. While the educational institution coordinates and provides oversight, healthcare staff act as clinical educators and patients are often involved. A key finding from this PhD is that interagency partnerships are required to build sustainable practice-based IPE. Participants were clear that collaboration between university and clinical educators supported practice-based IPE. This primarily took the form of frontline collaboration between clinical educators and the university practice education team. Collaboration included working together to offer practice-based IPE on a placement-by-placement basis and develop resources to support implementation. Leadership at each

agency were supportive of practice-based IPE to differing degrees. In the healthcare setting leadership support for practice-based IPE was contingent on circumstances and could be superseded by competing clinical demands. Overall collaboration had not evolved into interagency partnerships, with shared ownership and responsibility for planned development of practice-based IPE. This is a matter of interest beyond the site of this case study. Recent literature recommended the establishment of governance structures between education providers and healthcare services to ensure that practice-based IPE adheres to educational and patient safety requirements (O'Keefe *et al.* 2020). Yet, establishing enduring interagency partnerships is a complex undertaking, to which theory can make a valuable contribution.

Interagency partnerships require stakeholders with different roles and competing priorities to work together. This is a well-acknowledged challenge in health professions education (van Enk and Regehr 2018). Such issues are particularly pertinent for practice-based IPE, situated within healthcare institutions and under the remit of both the healthcare and educational systems. In this context a systems theory such as activity theory has much to offer. Activity theory allows each individual system to be considered, with a view to developing a common objective (Engestrom 2000). Recently, Nisbet *et al.* (2021) used activity theory to inform collaborative placement co-design with healthcare practitioners to develop student placements. The tenets of activity theory highlighted priorities and challenges for each system and where tensions may occur between systems. This type of theory could be helpful in developing inter-agency partnerships for practice-based IPE. However, there may be less visible yet influential factors at play when involving multiple stakeholders from different institutions. Longstanding issues regarding power relations between healthcare and educational institutions have been acknowledged but these often remain unaddressed (Cohen Konrad *et al.* 2019). Social network theory considers how structures and sociocultural dynamics within teams and institutions can enable or constrain people (Nimmon *et al.* 2019). Understanding and addressing these factors is likely essential for establishing long-standing practice-based IPE partnerships. Furthermore, practice-based IPE is not a static entity and changes at the level of either partner will be impactful. To ensure practice-based IPE remains a priority, an implementation and development strategy is beneficial. Rather than viewing this as a series of steps and tasks, a theoretically informed approach can be beneficial. An implementation orientated theory such as Normalisation Process Theory (NPT) (May *et al.* 2007) could be useful for this purpose.

NPT supports engagement of a range of stakeholders to achieve planned objectives and engages collective reflexivity to inform future implementation (Murray *et al.* 2010). Another perspective is offered by institutional theory (DiMaggio and Powell 1983), which posits that coercive approaches as well as enabling factors can be required to effect meaningful changes (Ginsburg and Tregunno 2005). In the context of practice-based IPE, the professional regulator can exert coercive influence, as they can mandate certain standards for practice-based IPE. Healthcare institutions require graduates to maintain the workforce and educational institutions must ensure students meet regulatory requirements for professional registration. Regulatory standards for practice-based IPE may increase inter-agency commitment to developing long-term practice-based IPE. While such an approach requires careful consideration, the example further illustrates the benefits of considering practice-based IPE from a range of theoretical perspectives. Theories offer alternative lenses through which to consider complex issues, by developing a shared understanding of processes and practices, illuminating unarticulated issues and supporting new ways forward to progress the aim of sustainable practice-based IPE

7.4 Cultivating theory in practice

The consideration of these findings through theoretical lenses demonstrates the value of theoretical layering. Each theory prompted consideration of different and relevant aspects of the findings, supporting a richer understanding of the phenomenon and possibilities for addressing important issues. However, these theories represent a small selection of the possible theories available. Researchers and educators must decide which theories are most suitable to their context (Yardley *et al.* 2012). Following the call to strengthen the theoretical underpinnings of IPE since the early 2000's, a wide range of theories have been used in interprofessional research. Unfortunately, this has created a '*confusing, and un-navigable quagmire*' (Hean *et al.* 2009, p.251) of theoretical choices, which may be particularly challenging for novice theory users (Samuel *et al.* 2020). The model developed in paper 3 is one tool to support theory selection and application. However, more is needed to make theory accessible to interprofessional researchers and educators. From the educator perspective, the research-practice pipeline is lengthy, with only a small percentage of research translating into practice (Green 2008). Rather than waiting for the results of already limited theoretically informed research to filter down to practice-based IPE, perhaps educators could be empowered to embed theory in their everyday educational practice.

At a practice level, cultivating a culture of theory use in practice-based IPE is needed. Communities of practice are a well-established approach, whereby people who work together regularly come together to address a particular issue (Wenger 2011). Previously, an international group, the 'In-2-Theory' group, formed a community of practice to improve the theoretical rigour of interprofessional research and practice (Hean *et al.* 2013). However, practice-based IPE involves many stakeholders, who work in diverse educational and healthcare roles and settings. Moreover, outside of practice-based IPE they may not regularly work together. This drew attention to Wenger and colleague's more recently developed theory, landscapes of practice (Hodson 2020). Landscapes of practice acknowledge that in complex systems people move between different communities of practice to fulfil their roles, the span of these communities is conceptualised as the landscape of professional practice (Pyrko *et al.* 2019). From this perspective, developing theory orientated educators across the landscape of practice presented as more advantageous than aiming to develop a specifically theory orientated community of practice. As part of the dissemination strategy for this research, consultative workshops could be offered via existing practice-education networks and events, to support those involved in practice-based IPE choose and apply theories relevant to their context. This approach would support theory infusion across a range of communities of practice, leading in time to a theoretically infused landscape of practice and increased sustainability of practice-based IPE.

7.5 Research Strengths and Limitations

Data collection

Active data collection for this research project spanned 18 months, from January 2019 to June 2020. However, since September 2017 I attended IPE related activities at the school and made a deliberate effort to develop a network of relevant contacts. As such this research spanned a 33-month period and allowed me to grasp the complexity of integrating practice-based IPE. For example, the impact of staffing changes on practice-based IPE in the absence of a clear implementation strategy. Additionally, my ongoing engagement with the site between data collection phases, evidenced an investment in practice-based IPE at the School beyond collection data for the purpose of achieving a doctorate. This created a culture of trust with participants, who were then willing to engage with the research and facilitate introductions to other participants. The output of this body of research has been five peer-reviewed publications. As such the research has contributed to the knowledge base and scholarship on practice-based IPE as findings

have been developed. This created a challenge in ensuring the overall focus of each paper remained in alignment with the overarching research question, particularly when responding to peer-review feedback and required regular dialogue among the supervisory team and Advisory Panel.

Methodology

The ethnographic nature of this research included direct observations of practice-based IPE activities. This allowed me to experience the reality of practice-based IPE which informed development of data collection tools, analysis, and recommendations. The impact of COVID-19 on the ethnographic element is a limitation of this study, as planned observations were cancelled which may have led to further observations and/or interviews. This would also have introduced at least one additional placement site, which have may have highlighted different considerations due to differing conditions. For example, nursing students were due to be part of an IPE tutorial at one planned observation. Indeed, professional representation is a relevant consideration in this study, as four allied health professions (physiotherapy, occupational therapy, human nutrition and dietetics, and speech and language therapy) housed together within a School of Allied Health were represented. This is a subset of the diverse professions represented by the umbrella term allied health professions. As such they may not capture the breadth of practice-based IPE issues and experiences within allied health. While limited in breadth, this focused approach allowed for in-depth research on the experiences of the professions represented. It is also acknowledged that educators or students from medicine and nursing, who sit within the same faculty as the School of Allied Health, were not included in this study. The School of Allied Health, as a relatively new entity with shared processes and structures, and aware of the growing need for collaborative practice ready graduates, took the opportunity to build an IPE curriculum. Thus, a broader faculty approach involving more, and larger, professions with established curricula was not deemed feasible at that point and may have been an over-extension.

It is recognised that clinical situations often require more diverse collaboration. While on placement students in this study encountered peers from a range of professions including physiotherapy, occupational therapy, human nutrition and dietetics, speech and language therapy, radiography, nursing, and medicine. Not all professions were represented in practice-based IPE. Participants reported that outside of structured practice-based IPE activities they were less likely to interact with those not involved in these activities. While no programme can prepare students for all the professional

groups they will need to engage with, it is important to ensure the practice-based IPE strand is as representative of everyday clinical practice as possible. Recommendations for interagency partnerships can support this, thorough ongoing involvement of placement partners in the design and development of practice-based IPE.

Advisory panel engagement

Engaging with an Advisory Panel added a participatory element to this research. People with direct experience, as well as having the opportunity to participate in the research, were also able to shape the direction of the research. Members of the panel guided me to consider nuances of practice-based IPE not knowable without direct experience. For example, it was during a discussion with the panel that including a direct question about IPE concerns emerged. I had felt this could be overly directive. Panel members felt that participants might perceive highlighting concerns as critical of the researcher and providing this opportunity via a focused question would be facilitative. Advisory Panel involvement was curtailed with onset of COVID-19. Clinical educators were redeployed to different roles within healthcare and within the education setting staff were dealing with the pivot to online teaching and remote learning. As such the final recommendations of this research did not have the same level of participatory involvement as earlier phases. Initially it was expected that patients would form part of this Advisory Panel as well as being invited to participate in the research. With the evolution of the research aim to focus on issue of implementing practice-based IPE utilising approaches requiring less direct interprofessional patient interaction it was not feasible to identify relevant patient groups. On reflection it may have been beneficial to consider recruitment of patients the students were seeing unprofessionally, to investigate the impact of practice-based IPE activities.

7.6 Future research

Many jurisdictions are grappling with embedding practice-based IPE and are at different stages of implementation. Drawing on the findings of this research, key areas for future research were identified. As explained earlier patient perspectives did not form part of this research. However, the input of this group is needed as practice-based IPE evolves, as this model directly impacts on their healthcare experiences. Currently, patients appear to have positive opinions and experiences of practice-based IPE (Anderson and Thorpe 2010; Reeves *et al.* 2016), but the data pool is small and limited in scope. In-depth patient orientated research is warranted to fully understand what features of practice-based IPE are most beneficial and areas for improvement.

Clinical education, based as it is in authentic healthcare settings, is often less theoretically informed than classroom or simulation-based education, with a high value placed on practical skills (Brown 2020). The knowledge and needs of practice educators in terms of theory has not been well researched to date and was not within the scope of this project to investigate. Some suggestions in this thesis, such as developing landscapes of practice would be beneficial. However, further data is needed to comprehensively address this issue. For example, convening focus groups to explore perspectives about theory among educators involved in practice-based IPE and how theory could be made more accessible. Building on the work to date, this research would also offer an opportunity to include a broader range of professionals from medicine, nursing, and allied health. Findings could inform further refinement of the model proposed in paper 3 to enhance utility for educators, informed by their experiences and perspectives. Outputs may include generation of a user guide to support theoretical decision making in practice. Future projects could then involve action research with a view to trialling and refining these models and tools to extend the usability and accessibility of theory in practice-based IPE. For example, a research question may focus on the process of constructing theoretically informed practice-based IPE. Such research can help balance theoretical viewpoints and practical needs (van Enk and Regehr 2018), to further advance practice-based IPE.

Furthermore, the COVID-19 pandemic generated promising new approaches to practice-based IPE, including use of telehealth options to address space and location challenges (Salter *et al.* 2020). However, these approaches would benefit from grounding in appropriate theory, both in terms of design and implementation (Lackie *et al.* 2020). The models outlined in this thesis can support robust development of such innovation within practice-based IPE. Moving forward there will likely be greater development of blended practice-based IPE (online and face-to-face) (Langegård *et al.* 2021). Educators could use the model in paper 3 to select appropriate theories when designing and evaluating blended practice-based IPE.

7.7 Summary

This research elucidates the complexity of integrating practice-based IPE into healthcare curricula and illuminates how theory can contribute to the advancement of practice-based IPE. Additionally, guidance and tools are provided to support the practical application of theory in practice. This has been a significant gap in the field and may have applicability beyond the sphere of practice-based IPE, to other areas where

guidance is required to support theory implementation. Future research may offer opportunities to test and refine the proposed models and recommendations. As such theory can make a vital contribution to the aim of sustainable practice-based IPE across healthcare settings.

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Chapter 8: Conclusions

8.1 Originality of research

This doctoral research provides an account of the process of integrating practice-based IPE into healthcare curricula, grounded in stakeholder experiences, and infused with theory. To this end the perspectives of students, university educators, and clinical educators were gathered and synthesised, drawing from direct observation of practice-based IPE activities, document reviews, and individual interviews. While Reeves (2008) conducted a three-year ethnographic study of an educator group planning a training ward placement, the focus was on one specific placement project and did not include student participants. Immersion in the world of practice-based IPE over a three-year period and use of multiple data collection methods allowed the researcher to develop in-depth knowledge of practice-based IPE, enhancing the credibility of findings and recommendations (Korstjens and Moser 2018). The key outputs of this research are five peer-reviewed publications, with theory forming a central component of each paper.

Through completing a metasynthesis and scoping review, a range of theories in use or with potential use in IPE scholarship were identified. However, the process by which theories were chosen and applied was often opaque, a trend common within interprofessional literature (Institute of Medicine 2015). To address this issue, the concept for paper 3 was developed, a step-by-step model to inform theory selection and application to IPE research. Articulating how each theory was used and how they were combined represents a unique contribution to IPE research (Varpio *et al.* 2019).

Moreover, given the span of theories potentially applicable to IPE from a range of disciplines, such guidance represents a valuable contribution. This thesis considered not only how theory can inform the design of practice-based IPE but also the process of implementation to support sustainability. This is of international relevance, as many jurisdictions are grappling with integrating practice-based IPE. Furthermore, it is widely acknowledged that medical and healthcare education requires greater theoretical underpinnings (Hodges and Kuper 2012). While designed from the perspective of practice-based IPE, this model could be adapted for use by educational and healthcare scholars more broadly.

Papers 4 and 5 reflect research informed by this model. This model is further developed in chapter 7 and illustrated by Figure 7.1, which outlines how educationalists can layer theory to develop practice-based IPE. This extends theory use beyond the research

sphere and into that of practice. Considering the complexity of implementing practice-based IPE, no single theory can fully account for all the issues requiring consideration. Theories relevant to the pedagogical development of a model of practice-based IPE will differ from those relevant to the process of implementation and organisational change required for sustainable practice-based IPE. Layering theories can help reduce inevitable blind spots which can hinder the overall process. IPE is not a panacea for all healthcare challenges, similarly theory will not solve all issues inherent in practice-based IPE. It can however help account for and address tensions and issues which may not be perceived at a surface level (Cleland and Durning 2019). It would not be appropriate to prescribe a list of theories, as theory must be matched to activity and setting. However, by publishing research that infuses theory throughout this research has contributed to the nascent body of work illustrating the contribution theory can make to practice-based IPE. Moreover, the output of paper 3 is a model to guide theory use, a significant gap in current literature.

This case-study is not written from the perspective of a school which has found all the solutions to the challenges of practice-based IPE. Rather it is an exploration of how the process is unfolding, as stakeholders strive to convert aspirations into reality. This exposition of the messy middle, when initial enthusiasm is depleted and the new practice is not yet embedded, is rarely reported on; yet there is valuable learning for others at a similar or earlier stage of developing practice-based IPE. In some jurisdictions, practice-based IPE was initiated as part of national healthcare reform and funded accordingly, at least during initial phases. Ireland, and this site, is an example of a different but not unique trajectory, characterised by piecemeal developments at a local or regional level, lacking overarching funding and support. As many IPE scholars will recognise some or all of these conditions, the findings of this research are relevant beyond the local site.

8.2 Methodological considerations

This research was grounded in an ethnographic case study. Ontologically, the research was developed from a position of critical realism. As such the aim was not to uncover a pre-existing objective truth (positivism) or draw solely on participant interpretation of experiences (subjectivism) (Bergman *et al.* 2012). Rather the intention was to develop an account that reflected participants' realities in the knowledge that all explanations are limited by human capacity to fully perceive reality (Edgley *et al.* 2016). To this end, this research does not provide definitive 'answers' to the questions about sustaining

practice-based IPE. Rather recommendations informed by theory and participant experiences in their context were provided. This reflects the nature of practice-based IPE, which fits the definition of a ‘wicked problem’. Wicked problems are described as messy problems impacted by the contextual landscape, not resolvable by clear-cut solutions, and requiring context specific and evolving approaches (Varpio *et al.* 2017). As such the conceptual framework underpinning this research was appropriate for the research topic. Leading scholars in health professions education recommend the use of theory to generate deeper knowledge about complex education topics such as practice-based IPE, and to facilitate transferability across settings (Rees and Monrouxe 2010). Theory is used throughout this research to give findings and recommendations an applicability beyond the local context. Moreover, transparently reporting the decision-making process regarding the research methodology as in paper 3 contributes to the dependability and confirmability of these findings (Korstjens and Moser 2018).

As the research was focused on generating in-depth and culturally attuned findings, ethnography was chosen as the most appropriate methodology. The merit in exploring a grounded theory approach, to further the development of theory derived from interprofessional research, is recognised. For example, Green (2013) developed a theory of relative distancing based on grounded theory research to inform IPE development. However, guidance regarding use of theories generated from grounded theory would still be required. Through adopting an approach congruent with theory application rather than theory generation, a model was developed which can be used to inform theory use, notwithstanding theory origins.

8.3 Reflexivity

Researcher positionality requires acknowledgement in the context of qualitative research such as that contained in this thesis (Berger 2015). While reflexive sections are interspersed throughout this thesis, it was important to engage in focused reflection as the research concluded. Throughout my doctoral research I maintained a part-time SLT role with a paediatric disability team. This meant experiencing the ups and downs of collaborative practice in parallel with conducting this research. SLT was one of the professional groups represented at the school and in my data set. My dual position as a practitioner and researcher gave me insights into the world of participants, while also bringing pre-existing assumptions and biases (Reid *et al.* 2018). Within my reflexive journal I explored preconceptions about not only my own profession (*we get so few placement hours already in SLT, how can anything else be fitted in?*), but also

preconceptions about other professions (*X profession always want to do their own thing*). During the research process I reviewed how these preconceptions might be influencing my data collection and analysis (*I think I am inclined to dismiss concerns about IPE from X profession or weight them less than other professions because of my own clinical experiences where colleagues from this profession have disengaged from team assessments*). Realistically, awareness and acknowledgement of these influences on my position was more achievable than aiming to bracket or suspend these beliefs (McLachlan *et al.* 2012). It is important to note that this research was funded by a scholarship from the school. I remained cognisant of this throughout the doctoral programme, particularly when identifying limitations of practice-based IPE at the site. The use of doctoral supervision sessions for ethical deliberation and open dialogue about power dynamics was a mechanism through which this concern was mitigated (Wisker *et al.* 2003).

My reflexive journal was beneficial in tracking and processing issues that arose during the doctoral research (Patnaik 2013). In reviewing my initial journal entries my primary focus was completion of the research to fulfil the requirements of the doctorate programme. As the research progressed, I began to identify my growing interest in practice-based IPE at this site and identified an investment in its development beyond the doctoral research. I recorded a sense of urgency to implement what was emerging to me from my data and the literature. This made it challenging to remain in the researcher role, there was a desire to become involved in its implementation. I was keen to share information that would support practice-based IPE during the process and many participants sought this also. Yet, this research was not designed as action research whereby findings are implemented, and then further data collection occurs (Parkin 2009). As such navigating the boundaries of outsider-insider became more challenging (Hill and Dao 2020). Reflexive journaling and discussions with team supervisors helped navigate these issues and generate solutions that maintained my researcher role while finding a forum to ensure findings were made accessible to the site. For example, I hosted a seminar where I presented findings of the metasynthesis to any site staff who were interested and circulated a recorded presentation. A question-and-answer session provided an opportunity for exploring how the findings could inform practice at the site. This was dually beneficial, in that staff had an opportunity to consider their site in relation to global experiences of practice-based IPE and provided me with further insight into the state of practice-based IPE at the site.

My relationship with theory during this research could be a case study on a journey into the world of theory. I initially baulked at the prospect of using theory in my research. I felt intimidated by what I perceived as highly abstract and intellectual concepts and doubted I could apply them meaningfully. The dedicated focus on theory in papers 2 and 3 provided ample opportunity to immerse myself in theory. I began to feel more comfortable in this space. I saw the practical ways that theory could enhance research. While developing paper 4, I applied three different theories. I was able to see how one theory helped me organise the story of the findings. While the others meaningfully contributed to design of data collection tools, they did not form a good fit for the findings. These experiences offered a useful perspective regarding how to further the use of theory in IPE. During the final year of the PhD I began to become a ‘theory champion’, as I could understand the underlying hesitancy of educators to engage with theory. When educators talked to me about future projects they had in mind, I would broach potential theories and give examples of similar projects which had used such a theory. I could see the initial trepidation I had felt reflected back, but there were some cases where educators did draw on a theory following a discussion. For example, one educator later told me she had used presage-process-product theory (Biggs 1993) to explore the feasibility of a proposed interprofessional placement and it highlighted key issues to address ahead of setting up the placement. As I conclude this research, maintaining my own engagement with theory and exploring ways to make more accessible to those who design and deliver practice-based IPE, as well as those who conduct research, is an area of great interest to me. Pursuing recommendations such as developing the theoretical model developed in paper 3 is a postdoctoral priority area.

8.4 Concluding statement

To achieve the vision of integrated, sustainable, and agile practice-based IPE that prepares graduates for current and future collaborative practice, greater use of theory is urgently needed. Acknowledging the challenges of theory use in practice-based IPE, a model and recommendations have been generated to improve theory accessibility. Suggestions generated for future research to extend this model can contribute to the ongoing progression of practice-based IPE. Infusing theory throughout practice-based IPE will not solve all changes associated with this complex approach. However, to quote President Barack Obama *‘just because something doesn’t have a perfect answer doesn’t mean it doesn’t have a better answer’* (Brown 2020).

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Appendices

Chapter 2 Appendices

Appendix 1: ENTREQ Statement

#	Item	Guide and description	Section & Page #
1	Aim	State the research question the synthesis addresses.	Instruction p.55
2	Synthesis methodology	Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology (e.g. meta-ethnography, thematic synthesis, critical interpretive synthesis, grounded theory synthesis, realist synthesis, meta-aggregation, meta-study, framework synthesis).	Method, p.56
3	Approach to searching	Indicate whether the search was pre-planned (comprehensive search strategies to seek all available studies) or iterative (to seek all available concepts until they theoretical saturation is achieved).	Search strategy, p.56 Appendix 2, p.243 Prospero protocol
4	Inclusion criteria	Specify the inclusion/exclusion criteria (e.g. in terms of population, language, year limits, type of publication, study type).	Search strategy, p.56 Appendix 2, p.243 Prospero protocol
5	Data sources	Describe the information sources used (e.g. electronic databases (MEDLINE, EMBASE, CINAHL, psycINFO, Econlit), grey literature databases (digital thesis, policy reports), relevant organizational websites, experts, information specialists, generic web searches (Google Scholar) hand searching, reference lists) and when the searches conducted; provide the rationale for using the data sources.	Appendix 2, p.243 Prospero protocol
6	Electronic Search strategy	Describe the literature search (e.g. provide electronic search strategies with population terms, clinical or health topic terms, experiential or social phenomena related terms, filters for qualitative research, and search limits).	Appendix 2, p.243 Prospero protocol
7	Study screening methods	Describe the process of study screening and sifting (e.g. title, abstract and full text review, number of independent reviewers who screened studies).	Methods, pp.56-57
8	Study characteristics	Present the characteristics of the included studies (e.g. year of publication, country, population, number of participants, data collection, methodology, analysis, research questions).	Findings, pp.59-65

9	Study selection results	Identify the number of studies screened and provide reasons for study exclusion (E.g., for comprehensive searching, provide numbers of studies screened and reasons for exclusion indicated in a figure/flowchart; for iterative searching describe reasons for study exclusion and inclusion based on modifications to the research question and/or contribution to theory development).	PRISMA flow chart, p.57
10	Rationale for appraisal	Describe the rationale and approach used to appraise the included studies or selected findings (e.g. assessment of conduct (validity and robustness), assessment of reporting (transparency), and assessment of content and utility of the findings).	Screening and quality appraisal, pp.56-57
11	Appraisal items	State the tools, frameworks and criteria used to appraise the studies or selected findings (e.g. Existing tools: CASP, QARI, COREQ, Mays and Pope [25]; reviewer developed tools; describe the domains assessed: research team, study design, data analysis and interpretations, reporting).	Screening and quality appraisal, pp.56-57
12	Appraisal process	Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required.	Screening and quality appraisal, p.56
13	Appraisal results	Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale.	Screening and quality appraisal, p.56
14	Data extraction	Indicate which sections of the primary studies were analyzed and how were the data extracted from the primary studies? (E.g. all text under the headings “results /conclusions” were extracted electronically and entered into a computer software).	Data extraction and data synthesis, pp.57-58
15	Software	State the computer software used, if any.	Data extraction and data synthesis, pp.57-58
16	Number of reviewers	Identify who was involved in coding and analysis	Data extraction and data synthesis, pp.57-58
17	Coding	Describe the process for coding of data (e.g. line by line coding to search for concepts).	Data extraction and data synthesis, pp.57-58
18	Study comparison	Describe how were comparisons made within and across studies (e.g. subsequent studies were coded into pre-existing concepts, and new concepts were created when deemed necessary).	Data extraction and data synthesis, pp.57-58
19	Derivation of themes	Explain whether the process of deriving the themes or constructs was inductive or deductive	Data extraction and data synthesis, pp.57-58
20	Quotations	Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations of the author’s interpretation.	Findings-synthesis, pp.66-71

21	Synthesis output	Present rich, compelling and useful results that go beyond a summary of the primary studies (e.g. new interpretation, models of evidence, conceptual models, analytical framework, and development of a new theory or construct).	Discussion, pp.72-75
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Appendix 2: Search Strategy

Search String used in CINAHL Database – adapted as required for other databases

Search ID#	Search Terms
S22	S3 AND S20 AND S21
S21	S9 OR S13 OR S16 OR S17
S20	S18 OR S19
S19	qualitative research OR qualitative evaluation OR mixed methods
S18	(MM "Qualitative Studies") OR (MM "Education Research")
S17	client OR patient OR service user OR service-user
S16	(care* OR caregiver OR family OR parent) AND (S14 OR S15)
S15	care* OR caregiver OR family OR parent
S14	(MM "Caregivers")
S13	((MM "Education, Clinical") OR (MM "Clinical Supervision")) AND (S11 OR S12)
S12	(MM "Education, Clinical") OR (MM "Clinical Supervision")
S11	educators
S10	S3 AND S9
S9	S6 OR S7 OR S8
S8	students
S7	(MH "Students") OR (MM "Students, Undergraduate")
S6	allied health
S5	(Students OR educators OR carers OR clients) AND (S3 AND S4)
S4	Students OR educators OR carers OR clients
S3	S1 AND S2
S2	Clinical placement OR workplace learn* OR practice learn*
S1	Interprofession* OR inter-profession OR interdisciplinary OR inter-disciplinary

Sources

Research Databases	CINAHL, Embase, PsycINFO, Sociological Abstracts, AMED
Grey Literature	The National Institute for Health and Care Excellence Centre for the Advancement of Interprofessional Education Canadian Interprofessional Health Collaborative National US Interprofessional Center Google Scholar
Key journals for hand searching	Journal of Interprofessional Care Journal of Research in Interprofessional Practice and Education Journal of Interprofessional Education and Practice Health and Interprofessional Practice Medical Teacher

Inclusion and Exclusion Criteria

	Inclusion criteria	Exclusion criteria
Focus of paper	Original research papers where the primary focus is IPE undertaken in an interprofessional placement (as previously defined).	Descriptive reports, editorials, commentaries.
Participants	Students (undergraduate or postgraduate students who are studying for a professional qualification), educators (university or clinically based) or service-users (or carers/family members).	Qualified healthcare professionals involved in continuing education programmes.
Context	An interprofessional placement that involves direct student-service-user (or carers/ family members) interaction.	Interprofessional education that does not involve direct patient interaction. For example, simulated or classroom based activities.
	Student teams consist of 2 or more students from different professional backgrounds such as occupational therapy, speech and language therapy or social work. At least one student is from a professional background other than medicine or nursing, to reflect the therapeutic aspect as well as medical aspect of healthcare.	Student team only consists of medical and nursing students.

Type of Study	Qualitative research and qualitative data from mixed methods studies will be included as aim of the review is to synthesise lived experiences of those involved in IPP.	Quantitative research
Language	English	Non-English due to resources available.
Date Limiters	Any studies that meet the above criteria will be included regardless of time of publication to maximise comprehensiveness of searching and reporting.	None

Appendix 3: Descriptive Coding Framework

Descriptive Codes	Files	References
Activities		
Advocacy	2	3
Client Assessment	10	13
Goal setting	1	3
Induction	1	1
Intervention	11	22
Observation	6	9
Patient Care	17	60
Presentation	2	3
Referrals	3	4
Reflection	7	14
Role play	1	1
Rounds	3	5
Shared project	5	7
Socialising	4	5
Support	6	13
Team decisions	9	11
Team Meeting	9	22
Teamwork	24	65
Barriers	37	192
Benefits	36	270
People		
Carer or Family	4	5
Educator at clinical site	22	179

Educator- role unclear	1	15
Manager	2	2
PhD Student	1	1
Service User or Patient	7	28
Staff on site	1	7
Student	34	372
University educator or staff	1	3
Presage	40	502
Context	32	32
Educator Preparation	12	35
Expectations	20	60
IPP Set-up	17	74
IPP Status	8	14
Levers	8	25
Preparation	18	53
Stereotypes and Hierarchies	25	53
Student Preparation	12	22
Theories	13	44
Process		
Change	17	37
Collaboration	23	60
Communication	20	57
Cultural Differences	3	8
Facilitating	10	27
Informal	12	25
Leadership	7	16

Learning About	23	50
Learning From	19	41
Learning Needs	11	15
Learning Preferences	10	28
Learning With	18	44
Places		
Accommodation	1	1
Cafe or Pub	2	2
Meeting Room	1	1
Office	4	6
Placement Commute	1	2
Problem Solving		
Professional socialisation	30	114
Roles	35	164
Supervision	22	143
Teaching Strategies	14	51
Tension-Conflict	35	139
Timing	20	51
Workload	17	41
Product		
IP Attitudes	17	30
IP Knowledge	16	40
IP Working	15	26
Relationships	25	51
Service user outcomes	23	67
Service outcomes	7	10

Student Assessment	5	10
Sustainability	9	11
Profession		
AHP	1	2
Clinical Psychology	1	3
Dentistry	2	4
Dietetics	1	1
Education	1	3
Kinesiology	1	1
Medicine	17	73
Midwifery	2	2
Nursing	20	88
Occupational Therapy	12	55
Paramedic	1	1
Pharmacy	4	4
Podiatry	1	1
Physiotherapy	10	34
Speech & Language Therapy	7	32
Social Work	8	49

Appendix 4: Process of Thematic Synthesis

Third order	Second Order	First Order	References
Building Theoretical Foundations	Theory underutilised	Theories are applied to the design and evaluation of a limited number of IPP studies.	40, 42, 45, 47, 49, 50, 51, 56, 59, 64, 70, 71, 75
		Time and proximity underpinning interprofessional learning.	4, 41, 44, 46, 53, 54, 61, 64, 66, 67, 68, 72, 73, 78
Layered Leadership	Team ownership of IPP	There is a reliance on frontline champions to implement IPP, making IPP vulnerable if these people move roles.	46, 51, 53, 54, 64, 78
	Interagency partnerships	Leadership is needed at managerial level within organizations and across health and education agencies.	45, 48, 51, 52, 53, 55, 61, 62, 64, 65, 68, 69, 71
		Integrated leadership can support adequate resourcing of IPP.	41, 51, 57, 65, 71, 74, 78
Navigating New Realities	Tension between new and traditional models of placement	Students, educators, and service-users are often unclear about what is expected of them during IPP.	41, 42, 43, 45, 46, 49, 53, 70, 73, 75, 76, 78, 79
		Stakeholders, especially students and educators require IPP specific training/ supports ahead of IPP as roles differ from those held during a uniprofessional placement.	44, 48, 53, 57, 58, 60, 61, 62, 65
		IPP is perceived as lower status than uniprofessional placement activity.	49, 54, 55, 58, 59, 64

Appendix 5: CERQual Evidence Profile

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
Building Theoretical Foundations							
<i>Theories are applied to the design and evaluation of a limited number of IPP studies.</i>	40, 42, 45, 47, 49, 50, 51, 56, 59, 64, 70, 71, 75	Minor concerns	Minor concerns	Moderate concerns	Minor concerns	Moderate	Of 14 studies, 9 had no/very minor or minor concerns regarding data adequacy, with 4 moderate concerns and 1 serious concern. 9 studies had no/very minor or minor concerns regarding methodological limitations, with 3 moderate and 2 serious concerns. 8 studies had no/very minor or minor concerns regarding coherence of findings, with 3 having moderate concerns and 3

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
							having serious concerns 11 had no/very minor or minor concerns regarding relevance of research and 3 had moderate concerns
<i>Time and proximity underpinning interprofessional learning</i>	4, 41, 44, 46, 53, 54, 61, 64, 66, 67, 68, 72, 73, 78	Moderate concerns	Minor concerns	Minor concerns	Minor concerns	High	Of 14 studies, 8 had no/very minor or minor concerns regarding data adequacy with 5 having moderate concerns and 1 serious concern. 10 had no/very minor or minor concerns regarding methodological limitations and there were 4 moderate concerns. 11 had no or minor concerns regarding

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
							coherence and relevance of research, with 3 moderate concerns for each category.
Layering Leadership							
<i>There is a reliance on frontline champions to implement IPP, making IPP vulnerable if these people move roles</i>	46, 51, 53, 54, 64, 78	No or very minor concerns	Minor concerns	No or very minor concerns	No or very minor concerns	High	Of 6 studies, 5 had no/very minor concerns regarding data adequacy and 1 moderate concern. 5 had no/very minor or minor concerns regarding methodological limitations, with 1 moderate concern. 5 had no/very minor or minor concerns regarding coherence of findings and

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
							relevance of research with 1 moderate concern in each category.
<i>Leadership is needed at managerial level within organizations and across health and education agencies</i>	45, 48, 51, 52, 53, 55, 61, 62, 64, 65, 68, 69, 71	Minor concerns	Minor concerns	Minor concerns	Minor concerns	High	Of 13 studies, 11 had no/very minor concerns regarding data adequacy with 1 moderate and 1 serious concern. 8 had no/very minor or minor concerns regarding methodological limitations, with 4 moderate concerns and 1 serious concern. 11 had no/very minor or minor concerns regarding coherence of findings, with 1 moderate and 1 serious concern. 10

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
							had no/very minor or minor concerns regarding relevance of research, with 3 moderate concerns.
<i>Integrated leadership can support adequate resourcing of IPP</i>	41, 51, 57, 65, 71, 74, 78	Minor concerns	Moderate concerns	Minor concerns	Minor concerns	High	Of 13 studies, 11 had no/very minor or minor concerns regarding data adequacy with 1 moderate concern and 1 serious concern. 8 had no/very minor or minor concerns regarding methodological limitations, with 4 moderate concerns and 1 serious concern. 11 had no/very minor or minor concerns regarding coherence of

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
							findings and relevance of research, with 2 moderate concerns in each category.
Negotiating New Realities							
<i>Students, educators and service-users are often unclear about what is expected of them during IPP</i>	41, 42, 43, 45, 46, 49, 53, 70, 73, 75, 76, 78, 79	Moderate concerns	Minor concerns	Moderate concerns	Minor concerns	Moderate	Of 13 studies, 7 had no/very minor or minor concerns regarding data adequacy, 3 had moderate concerns and 3 had serious concerns. 7 had no/very minor or minor concerns regarding methodological limitations, with 5 moderate concerns and 1 serious concern. 9 had no/very minor or minor concerns regarding

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
							coherence of findings with 1 moderate and 3 serious concerns. 7 had no/very minor concerns regarding relevance of research while 6 had moderate concerns
<i>Stakeholders require IPP specific training/ supports ahead of IPP as roles differ from those of held during a uniprofessional placement</i>	44, 48, 53, 57, 58, 60, 61, 62, 65	Minor concerns	Minor concerns	No or very minor concerns	No or very minor concerns	High	Of 9 studies, 7 had no/very minor or minor concerns regarding data adequacy, with 2 moderate concerns. 6 studies had no/very minor or minor concerns regarding methodological limitations, with 3 moderate concerns. 8 studies had no/very minor or

Finding	Studies contributing to the review finding	Data Adequacy	Methodological Limitations	Coherence of Findings	Relevance of research	CERQual assessment of confidence	Explanation of CERQual assessment
							minor concerns regarding coherence of findings and 1 moderate concern. 9 studies had no/very minor or minor concerns regarding relevance of research
<i>IPP is perceived as lower status than uniprofessional placement activity</i>	49, 54, 55, 58, 59, 64	Minor concerns	Minor concerns	No or very minor concerns	Minor concerns	High	Of 6 studies, 5 had no/very minor or minor concerns with 1 moderate concern regarding data adequacy, methodological limitations and coherence of findings. 6 had no/very minor or minor concerns regarding relevance of research.

Chapter 3 Appendices

Appendix A: Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR)

Checklist (Tricco *et al.* 2018)

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	93
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	95 – unstructured as per style of publishing journal
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	96-98
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	97-98
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	Review protocol does not exist
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	99
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	99

Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	262, Appendix B
Selection of sources of evidence	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	100
Data charting process	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	101
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Not Applicable
Critical appraisal of individual sources of evidence	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	101
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	103
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	100
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	104-107
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	263, Appendix C
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	104-107
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	108-111
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the	112-114

		review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	114
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	115
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	115

Appendix B: Search Strategy

S1	interprofessional OR inter-professional OR interdisciplinary OR inter-disciplinary OR mutliprofessional OR mutli-professional OR multidisciplinary OR multi-disciplinary
S2	practice OR collaboration
S3	education OR training OR curriculum
S4	S2 OR S3
S5	S1 AND S4
S6	theory OR conceptual framework
S7	S5 AND S6

Theories 1-9 were already in use in IPC research while 10-17 had been recommended as having potential use by Suter *et al.* (2013)

1.	Institutional theory
2.	Learning organization
3.	Organizational learning
4.	Punctuated equilibrium theory
5.	Activity theory
6.	Chaos theory
7.	Complexity theory OR complexity science
8.	Presage-process-product OR Biggs theory
9.	Systems theory
10.	Behavioral theory of the firm
11.	Contingency theory
12.	Socio-technical theory
13.	Stakeholder theory
14.	Differentiation-integration theory
15.	Diffusion of innovation theory
16.	Implementation theory
17.	Unfreeze-change-refreeze OR Lewin's theory

Example of searches for named theories:

S1	interprofessional OR inter-professional OR interdisciplinary OR inter-disciplinary OR mutliprofessional OR mutli-professional OR multidisciplinary OR multi-disciplinary
S2	activity theory
S3	S1 AND S2

Appendix C: CCAT scores per study

P=Preliminaries; I=Introduction; D=Design; S=Sampling; DC=Data collection;

EM=Ethical Matters; R=Results; D=Discussion

Percentages have been rounded up to nearest whole numbers

Citation	P	I	D	S	DC	EM	R	D	Total Score	Total Percentage
Anderson <i>et al.</i> (2016)	3	5	3	2	2	3	4	5	27	68%
Anderson <i>et al.</i> (2019)	4	5	5	5	5	4	5	5	38	95%
Applequist <i>et al.</i> (2017)	4	3	4	3	4	3	4	4	29	73%
Barrow <i>et al.</i> (2015)	4	5	3	3	4	3	5	5	32	80%
Bergman-Pyykkönen (2017)	4	4	3	3	4	3	4	4	29	73%
Bluteau <i>et al.</i> (2017)	4	5	4	4	5	4	5	5	36	90%
Bostock <i>et al.</i> (2018)	3	4	4	5	4	5	4	4	33	83%
Brewer (2016)	5	5	4	4	4	4	4	5	35	88%
Brewer <i>et al.</i> (2017)	5	5	4	4	5	4	4	4	35	88%
Bunniss & Kelly (2013)	4	5	4	2	4	3	5	5	32	80%
Burm <i>et al.</i> (2019)	4	4	4	3	5	5	5	5	35	88%
Buttigieg <i>et al.</i> (2013)	4	4	4	3	4	4	3	4	30	75%
Casimiro <i>et al.</i> (2015)	4	4	4	3	5	4	5	4	33	83%
Clemins <i>et al.</i> (2016)	4	4	4	4	4	3	3	4	30	75%
de Bock <i>et al.</i> (2018)	3	3	3	3	3	4	4	4	27	68%
Ganotice & Chan (2019)	3	4	4	4	4	3	4	4	30	75%
Gilardi <i>et al.</i> (2014)	5	5	3	4	4	4	4	4	33	83%
Jorm <i>et al.</i> (2016)	5	5	4	4	4	4	5	5	36	90%
Kallio <i>et al.</i> (2016)	3	3	3	4	3	5	2	2	25	63%
Kent <i>et al.</i> (2016)	5	5	5	4	4	4	5	4	36	90%
Liaw <i>et al.</i> (2014)	4	4	4	4	3	4	3	2	28	70%
McDougall <i>et al.</i> (2016)	5	5	4	4	5	4	5	5	37	93%
Messenger (2013)	4	4	4	4	3	4	3	3	29	73%
Meyer & Lees (2013)	4	5	4	5	5	4	3	4	34	85%
Misfeldt <i>et al.</i> (2018)	4	4	5	4	4	4	4	5	34	85%
O'Keefe & Ward (2018)	4	4	5	4	4	5	4	4	34	85%
Pless <i>et al.</i> (2018)	4	5	5	5	4	5	5	5	38	95%
Pype <i>et al.</i> (2018)	4	4	4	3	4	4	4	5	32	80%
Solomon & Risdon (2014)	4	5	4	3	4	4	4	4	32	80%
Teodorczuk <i>et al.</i> (2015)	5	5	5	4	4	4	4	5	36	90%
Teräs (2016)	4	4	3	3	4	0	5	4	27	68%
Vestergaard & Nørgaard (2018)	4	5	5	4	5	4	5	5	37	93%

Appendix D: Ratings on application of theory

Authors	CCAT	Theory	Explanation	Justification	Design	Analysis
Anderson <i>et al.</i> (2016)	68%	Presage-process-product theory	Yes	Somewhat	Yes	Yes
Anderson <i>et al.</i> (2019)	95%	Activity theory	Yes	Yes	No	Somewhat
Applequist <i>et al.</i> (2017)	73%	Stakeholder theory	Yes	Yes	Somewhat	Yes
Barrow <i>et al.</i> (2015)	80%	Activity theory	Yes	Yes	Somewhat	Yes
Bergman-Pyykkönen (2017)	73%	Activity theory	Yes	Somewhat	No	Yes
Bluteau <i>et al.</i> (2017)	90%	Ecological Systems theory	Yes	Yes	Yes	Yes
Bostock <i>et al.</i> (2018)	83%	Diffusion of innovation theory	Yes	Yes	No	Yes
Brewer (2016)	88%	Diffusion of innovation theory	Yes	Yes	Somewhat	Yes
Brewer <i>et al.</i> (2017)	88%	Presage-process-product theory	Yes	Somewhat	Somewhat	Yes
Buniss & Kelly (2013)	80%	Activity theory	Somewhat	Somewhat	Yes	Yes
Burm <i>et al.</i> (2019)	88%	Actor-network theory	Somewhat	Yes	Somewhat	Yes
Buttigieg <i>et al.</i> (2013)	75%	Complexity theory	Somewhat	Yes	No	Somewhat

Casimiro <i>et al.</i> (2015)	83%	Activity theory	No	Somewhat	No	No
Clemins <i>et al.</i> (2016)	75%	Complexity theory	Somewhat	Somewhat	No	Somewhat
de Bock <i>et al.</i> (2018)	68%	Complexity theory	Somewhat	No	No	Yes
Ganotice & Chan (2019)	75%	Presage-process-product theory	Yes	Yes	Yes	Yes
Gilardi <i>et al.</i> (2014)	83%	Distributed Cognition theory	Yes	Yes	Somewhat	Yes
Jorm <i>et al.</i> (2016)	90%	Complexity theory	Yes	Yes	Yes	Somewhat
Kallio <i>et al.</i> (2016)	63%	Network theory	Somewhat	Somewhat	Somewhat	Somewhat
Kent <i>et al.</i> (2016)	90%	Activity theory	Yes	Yes	Yes	Somewhat
Liaw <i>et al.</i> (2014)	70%	Presage-process-product theory	Somewhat	No	Yes	Somewhat
McDougall <i>et al.</i> (2016)	93%	Actor-network theory	Yes	Yes	Yes	Yes
Messenger (2013)	73%	Sociocultural theory	Yes	Somewhat	No	Somewhat
Meyer & Lees (2013)	85%	Activity theory	Yes	Yes	Somewhat	Yes
Misfeldt <i>et al.</i> (2018)	85%	Socio-ecological theory	Somewhat	Yes	Somewhat	Somewhat
O'Keefe & Ward (2018)	85%	Activity theory	Yes	Yes	Yes	Yes

Pless <i>et al.</i> (2018)	95%	Socio-technical theory	Yes	Yes	Somewhat	Yes
Pype <i>et al.</i> (2018)	80%	Complexity theory	Yes	Yes	Yes	Yes
Solomon & Risdon (2014)	80%	Complexity theory	Yes	Yes	Yes	Yes
Teodorczuk <i>et al.</i> (2015)	90%	Activity theory	Somewhat	Yes	No	Yes
Teräs (2016)	68%	Activity theory	Somewhat	Yes	No	Yes
Vestergaard & Nørgaard (2018)	93%	Stakeholder theory	Yes	Somewhat	Yes	Yes

Rating of theory:

Yes=detailed reference to theory in the section; Somewhat=theory is mentioned or referred to; is not integral to the section and could have been expanded on; No=limited or no reference to theory in the section.

Chapter 4 Appendices

Appendix A: Alignment of research paradigm, theory and methodology

	Realism	Sociomaterial theories	Sociological theories	Ethnographic case studies
Key Features	Human experience is influenced by interactions and construction of experience as well as factors beyond human perception and observation (Danermark, Ekström, Jakobsen, & Karlsson, 2002)	Deep exploration of the complex and non-linear relationships between people, materials and socio-cultural factors (Goldszmidt, 2017)	Considers the impact of society and culture on the phenomenon of interest (Reeves 2016)	Immersion / lengthy engagement within field of interest to develop in-depth socio-cultural understanding of the phenomenon (Parker-Jenkins, 2018; Yin, 2014)

References in reference list of corresponding paper

Appendix B: Data collection tools

Theoretically informed observational template

Observational Summarisation				
Describe the environment and participant(s) in as much detail as you can (for example: time, space, lighting, sound, appearance, body language, tone of voice)				
Describe the observation process (for example: flow, depth of participant responses, rapport between observer and participant, changes during observation).				
Keywords or phrases that capture a key idea or interesting concept.				
Key points from this observation				
Relationship between what was observed and research question and aims				
Consider which features of these theories are reflected in what is observed				
Complexity theory				
Emergence & self-organising		More than the sum of its parts		Nested systems
Internal diversity	Internal redundancy	Decentralized control	Neighbouring interactions	Enabling constraints
Actor-network theory				
Human Factors		Non-human factors		
Negotiated order theory				
Cooperative		Conflictual		Non-negotiated boundary blurring
Presage-process-product				
Presage		Process		Product
Normalization Process Theory				
Coherence		Cognitive Participation		Collective Action
				Reflective Monitoring

Theoretically informed interview questions

Prologue: I know that here in SAH lots of people have been involved in planning, supporting, and reflecting on IPE during placement over the last few years. I am interested in hearing about the range of experiences from people who have had different types of involvement.		
Question	Theoretical influences and ordering of questions	
1. Can you tell me about your own involvement/journey with IPE during placement? [have you been involved in an interprofessional placement, how do you see IPE during placement unfolding within SAH if no involvement to date]		
2. What is your biggest driver for IPE during placement?	<ul style="list-style-type: none"> This question was informed by negotiated order theory as it taps into individual beliefs about IPE during placement which will inform interactions/negotiations with others about IPE during placement. This question is positioned as Q.2, as it addresses personal motivation – a key feature of the presage stage 	PRESAGE
3. How would you go about setting up IPE during placement?	<ul style="list-style-type: none"> This question was stimulated by presage-process-product theory as it focuses attention on the development phase of IPE during placement. This has been positioned as Q3 as it considers the structural /logistical aspects of IPE during placement 	
4. What would be your biggest concerns about IPE during placement? [Of concerns / challenges, would any of them stop you going ahead with IPE during placement]	<ul style="list-style-type: none"> This question was informed by negotiated order theory as it taps into individual beliefs about IPE during placement which will inform interactions/negotiations. This question was also informed by complexity theory and consideration of conditions required for complex innovations. 	
5. What tools/ regulations/ guidelines do you use to inform your decisions about IPE during placement?	<ul style="list-style-type: none"> This question was developed to open up discussion about non-human factors impacting IPE during placement and was informed by actor-network theory. 	PRO CESS

	<ul style="list-style-type: none"> This followed Q.5 as it moves the discussion into the process/ implementation phase of IPE during placement. 	
6. Where does IPE during placement fit within the overall scheme/ demands/ priorities of your work as an _____ [Name Role]	<ul style="list-style-type: none"> Related to the cognitive participation principal of Normalization Process Theory This question could be positioned at an earlier stage, it was positioned here to capture how the actual implementation of IPE during placement fits into staff work role and schedules. 	
7. When you ran IPE during placement what did it look like? [in terms of what activities students did / how they interacted with patients / length of IPE] OR What would an IPE during placement look like if you were running one?	<ul style="list-style-type: none"> This question is informed by complexity theory as it allows for consideration of conditions required for IPE during placement. Actor-network theory may also be relevant as interaction of human and non-human factors during placement may impact the process 	
8. Reflecting on your IPE during placement experiences what was the main outcome (positive/negative) for: a) You as an educator b) Students [capturing student learning] c) Patients	<ul style="list-style-type: none"> This question moves into the outcomes of IPE during placement, as I considered what outcomes staff seek/hope for from IPE during placement and how these relate to identified measure of interprofessional collaboration. It is positioned as Q.8 to move from the process to the product of IPE during placement. 	PRODUCT
9. Is there anything else you would like to add or comment on before we finish this interview? [Closing question to conclude interview]. Thank you for your time and participation in this interview.		

Chapter 5 Appendices

Appendix 1: Participant information and consent



Participant Information Sheet: Observations

Interprofessional Placements in School of Allied Health at University of Limerick

What is the project about? This project is exploring the process of setting up, conducting, and evaluating IPE during placements at the School of Allied Health. It is a project that is co-designed by myself, my supervisory team, and an Advisory Panel. The Advisory Panel consists of staff and student representatives to make sure that the views of people involved in IPE during placements are represented throughout the research process. We want to better understand how this process works, from the point of view of the people involved in the placements. As a member of staff who is involved in IPE during placements, your perspective on this is very valuable.	
What will I have to do? Allow me to observe you during IPE related activities, such as placement planning meetings. For activities such as meetings I will be purely observing and will not participate. For other activities, such as training events I am happy to participate in some activities that we both agree. During these observations I will make written notes about what I see and hear. I will not audio or video record. I can show you an anonymised summary of notes after the activity and we can check that you are happy with what I have recorded and make any changes that are needed.	
What are the benefits? The findings from this project will increase our understanding of IPE during placements. This may result in enhanced experiences as you plan, conduct, and evaluate future IPE during placements.	What are the risks? Some people can find having an observer present uncomfortable or worry it will disrupt the activity. We can agree what you are happy for me to do before beginning the observation. For example, just observe or take part in some parts of the activity.
What if I do not want to take part? If you do not wish to take part at all you do not need to do anything. Thank you for taking the time to read this information leaflet.	What if I agree to take part and later change my mind? If you decide to take part and later change your mind later this is fine. You can stop taking part in the research study at any time and this is dealt with in a sensitive and confidential manner. You do not need to provide a reason for withdrawing from the research.
Who else is taking part? Staff from School of Allied Health and wider UL community who have been involved in IPE during placements. In later phases of the research students and practice educators will be invited to participate.	

<p>What happens to the information?</p> <p>The information gathered from the study will be handled confidentially. Observation notes will be typed following the observation. Handwritten notes will be shredded, and typed notes will be stored in an encrypted file on a password protected computer. Data will be anonymised, and real names will not be used in observation notes or the findings of the research.</p> <p>Anonymised data may be shared with my supervisors and my advisory panel (SAH staff and past student representatives who provide input and feedback on the research process)</p>	<p>What happens at the end of the study?</p> <p>The Advisory Panel and I will develop a plan for how to share findings from this research, such as presenting findings at conferences and seminars. We will also develop written papers based on my findings which will be submitted to a journal for publication. All data in the papers will be anonymised.</p> <p>Basic participant details and anonymised data will be held for up to 7 years on a password-protected computer at UL. This is based on the data protection policy of UL. You can read more about this here: https://ulsites.ul.ie/corporatesecretary/data-protection</p>
<p>What if something goes wrong?</p> <p>If you find the process of observation uncomfortable or upsetting you can ask me to stop observing at any time. We can agree on how you would feel comfortable communicating this ahead of the observation.</p> <p>I will make every effort to ensure your data remains secure and confidential. If there is a data breach, for example if a piece of data is lost, I will follow the UL data protection policy, which you can read more about here: https://ulsites.ul.ie/corporatesecretary/data-breaches</p> <p>What if I have more questions or do not understand something?</p> <p>If you do not understand any aspect of the research or would like more information, please contact myself or any member of the research team. It is important that you feel completely at ease during the research.</p>	

Thank you for taking the time to read this information leaflet.

Participant Information Sheet: Interviews

Interprofessional Placements in School of Allied Health at University of Limerick

<p>What is the project about? This project is exploring the process of setting up, conducting, and evaluating IPE during placements at the School of Allied Health. It is a project that is co-designed by myself, my supervisory team, and an Advisory Panel. The Advisory Panel consists of staff and student representatives to make sure that the views of people involved in IPE during placements are represented throughout the research process. We want to better understand how this process works, from the point of view of the people involved in the placements. As a member of staff who is involved in IPE during placements, your perspective on this is very valuable.</p>	
<p>What will I have to do? Attend an individual interview with me, where I will ask questions about IPE during placements. I will audio record the interview for transcription later. I can send you a copy of the transcription and we can review this together.</p>	
<p>What are the benefits? The findings from this project will increase our understanding of IPE during placements. This may result in enhanced experiences as you plan, conduct, and evaluate future IPE during placements.</p>	<p>What are the risks? If you have had difficult experiences in relation to IPE during placements, discussing these experiences in the interview may cause some upset. If this were to happen, we can pause or stop the interview at any point.</p>
<p>What if I do not want to take part? If you do not wish to take part at all you do not need to do anything. Thank you for taking the time to read this information leaflet.</p>	<p>What if I agree to take part and later change my mind? If you decide to take part and later change your mind later this is fine. You can stop taking part in the research study at any time and this is dealt with in a sensitive and confidential manner. You do not need to provide a reason for withdrawing from the research.</p>
<p>Who else is taking part? Staff from School of Allied Health and wider UL community who have been involved in IPE during placements. In later phases of the research students and practice educators will be invited to participate.</p>	

<p>What happens to the information?</p> <p>The information gathered from the study will be handled confidentially. Audio recordings will be transferred from the recording device to an encrypted file on a password protected computer immediately after the interview. Recordings will be deleted from the recording device. Audio recordings will be transcribed by the researcher or a professional transcription service. Transcriptions will be sent to the transcriptionist via a secure forum. The transcriptionist will be asked to provide a statement as to how they will maintain confidentiality and adhered to GDPR. Transcripts will be stored on an encrypted file on a password protected computer. Data will be anonymised, and real names will not be used in the findings of the research.</p> <p>Anonymised data in transcript format will be uploaded to NVivo data management software. Excerpts may be shared with my supervisors and my advisory panel (SAH staff and past student representatives who provide input and feedback on the research process). Anonymised electronic files will be shared using HEANet File Sender.</p>	<p>What happens at the end of the study?</p> <p>The Advisory Panel and I will develop a plan for how to share findings from this research, such as presenting findings at conferences and seminars. We will also develop written papers based on my findings which will be submitted to a journal for publication. All data in the papers will be anonymised.</p> <p>Basic participant details and anonymised data will be held for up to 7 years on a password-protected computer at UL. This is based on the data protection policy of UL. You can read more about this here: https://ulsites.ul.ie/corporatesecretary/data-protection</p>
<p>What if something goes wrong?</p> <p>If you find the process of the interview uncomfortable or upsetting you can ask me to stop at any time. I will make every effort to ensure your data remains secure and confidential. If there is a data breach, for example, a piece of data is lost, I will follow the UL data protection policy, which you can read more about here: https://ulsites.ul.ie/corporatesecretary/data-breaches</p> <p>What if I have more questions or do not understand something?</p> <p>If you do not understand any aspect of the research or would like more information, please contact myself or any member of the research team. It is important that you feel completely at ease during the research.</p>	

Thank you for taking the time to read this information leaflet.

Research Team Contact Details:

<p><u>Researcher</u></p> <p>Noreen O’Leary, School of Allied Health, University of Limerick Email: noreen.oleary@ul.ie</p>	<p><u>Supervisors</u></p> <p>Dr Nancy Salmon, School of Allied Health, University of Limerick Email: nancy.salmon@ul.ie Dr Amanda Clifford, School of Allied Health Email: amanda.clifford@ul.ie</p>
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This research study has received Ethics approval from the Education and Health Sciences Research Ethics Committee (Approval ref: 2018-12-30).

If you have any concerns about this study and wish to contact someone independent, you may contact:

Chairman Education and Health Sciences Research Ethics Committee
EHS Faculty Office, University of Limerick
Tel (061) 234101

Participant Consent Form: Observations

If you agree to participate in this study please read the statements below and if you agree to them, please sign the consent form.

<ul style="list-style-type: none"> I have read and understood the participant information sheet. I understand what the project is about, and what the results will be used for. I understand that what the researchers find out in this study may be shared with the research supervisors and advisory panel during the process of data analysis but that my name will not be given to anyone and any information relating to me will be anonymised. I understand that what the researchers find out in this study may be shared with others but that my name will not be given to anyone in any written material developed. I am fully aware of what I will have to do, and of any risks and benefits of the study. I know that I am choosing to take part in the study and that I can stop taking part in the study at any stage without giving any reason to the researcher. 	<input style="width: 50px; height: 30px;" type="checkbox"/>
Participant Observations This study involves observation of activities related to IPE during placement. Please tick the appropriate box	
<ul style="list-style-type: none"> I am aware that the researcher will observe IPP related activities and will make field notes that do not include real names and locations. I agree to the researcher making notes about my participation during activities. I know I can withdraw this consent if I change my mind and do not need to provide a reason. I consent to taking part in this research study. 	<input style="width: 50px; height: 30px;" type="checkbox"/>
<ul style="list-style-type: none"> I do not agree to the researcher taking notes on my participation in IPP related activities. I understand that the researcher may be present at such activities for other purposes and that no notes relating to me will be made. 	<input style="width: 50px; height: 30px;" type="checkbox"/>

I agree to the statements above:

Name: (please print): _____

Signature: _____

Date: _____

Investigator's Signature: _____

Date: _____

Ethical Approval Number: 2018-12-30

Participant Consent Form: Observations

If you agree to participate in this study please read the statements below and if you agree to them, please sign the consent form.

<ul style="list-style-type: none"> • I have read and understood the participant information sheet. • I understand what the project is about, and what the results will be used for. • I understand that anonymised audio files may be shared with a professional transcription service. • I understand that what the researchers find out in this study may be shared with the research supervisors and advisory panel during the process of data analysis but that my name will not be given to anyone and any information relating to me will be anonymised. • I understand that what the researchers find out in this study may be shared with others but that my name will not be given to anyone in any written material developed. • I am fully aware of what I will have to do, and of any risks and benefits of the study. • I know that I am choosing to take part in the study and that I can stop taking part in the study at any stage without giving any reason to the researcher. 	<input type="checkbox"/>
<p style="text-align: center;">Interview This study involves interviews related to IPE during placement.</p>	
<ul style="list-style-type: none"> • I am aware that the researcher audio-record an interview with me. I understand this interview will be transcribed by the researcher or a professional transcription company. I know I can withdraw this consent if I change my mind and do not need to provide a reason. I consent to taking part in this research study. 	<input type="checkbox"/>

I agree to the statements above:

Participant name: (please print): _____

Signature: _____ **Date:** _____

Investigator's signature: _____ **Date:** _____

Ethical Approval Number: 2018-12-30

Appendix 2: Data Collection Tools

Participant Observation Guide

Observer: Participant Number/Pseudonym: Date of Observation:
1. Describe the environment where the observation took place in as much detail as you can (for example: time, space, lighting, sound)
2. Describe the participant(s) in as much detail as you can (for example: appearance, body language, tone of voice, comfort level)
3. Describe the observation process (for example: flow, depth of participant responses, rapport between interviewer and participant, change over the course of the interview).
4. Were there any unexpected interruptions that need to be explained to the transcriber? (for example: loud noises, someone needing to take a phone call, the recorder being shut off for a period of time).
5. Think back over the observation. Were there any keywords or phrases used by the participant that struck you in some way? If so, list them here.
6. Summarize the key points from this observation in 2-3 paragraphs.
7. Consider your main research question. In what ways does this observation help you respond to that question?
8. Now think about the aims of your study. Describe how this observation connects to those aims.
9. Now turn your attention to your own experience of the observation itself. How did you respond throughout the session? Did you hear pretty much what you expected to hear? If so, explain. Did anything about the participant's experience surprise you or make you feel uncomfortable? If so, explain.

Participant Interview Guide

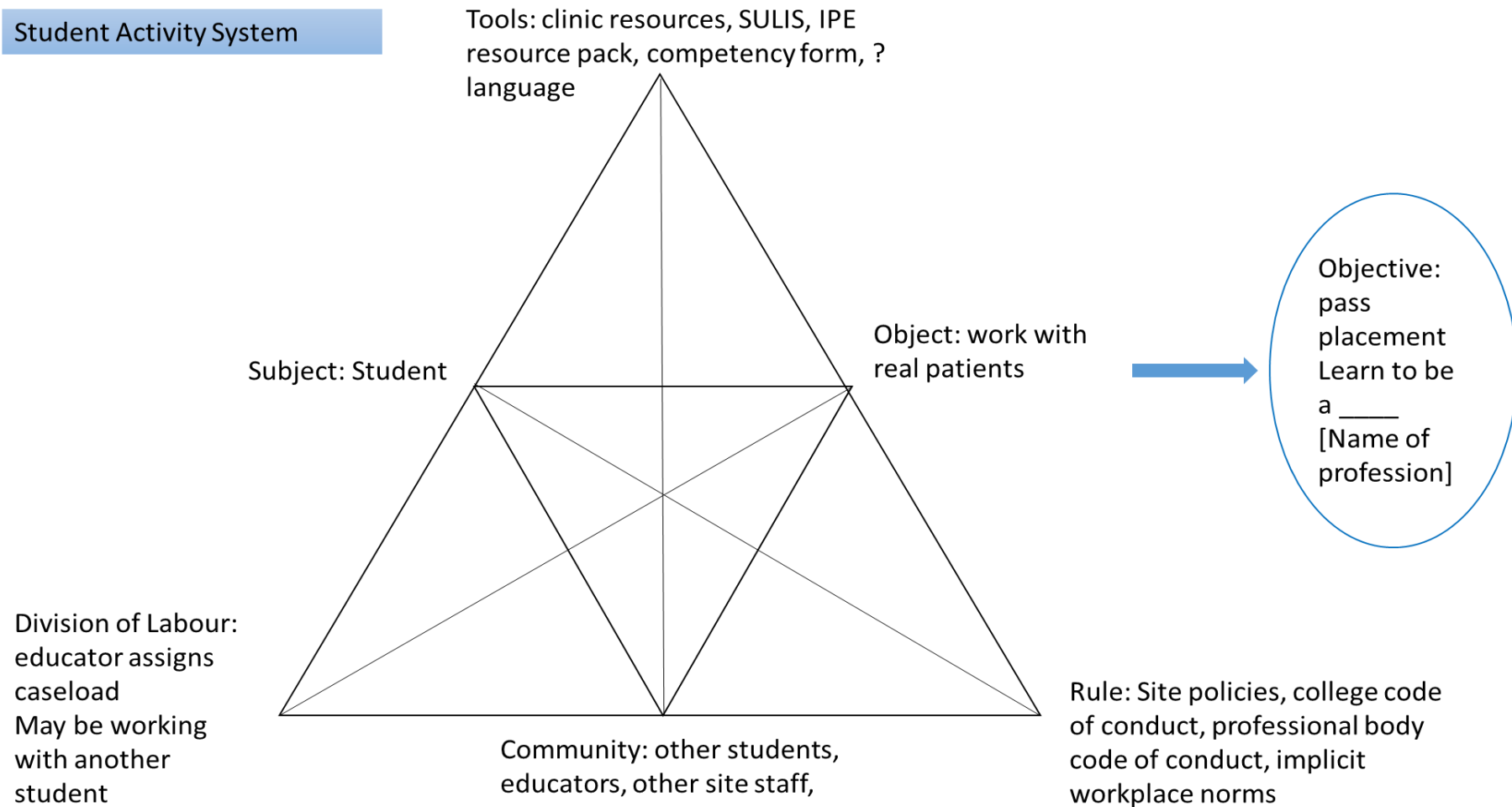
University-based Educators

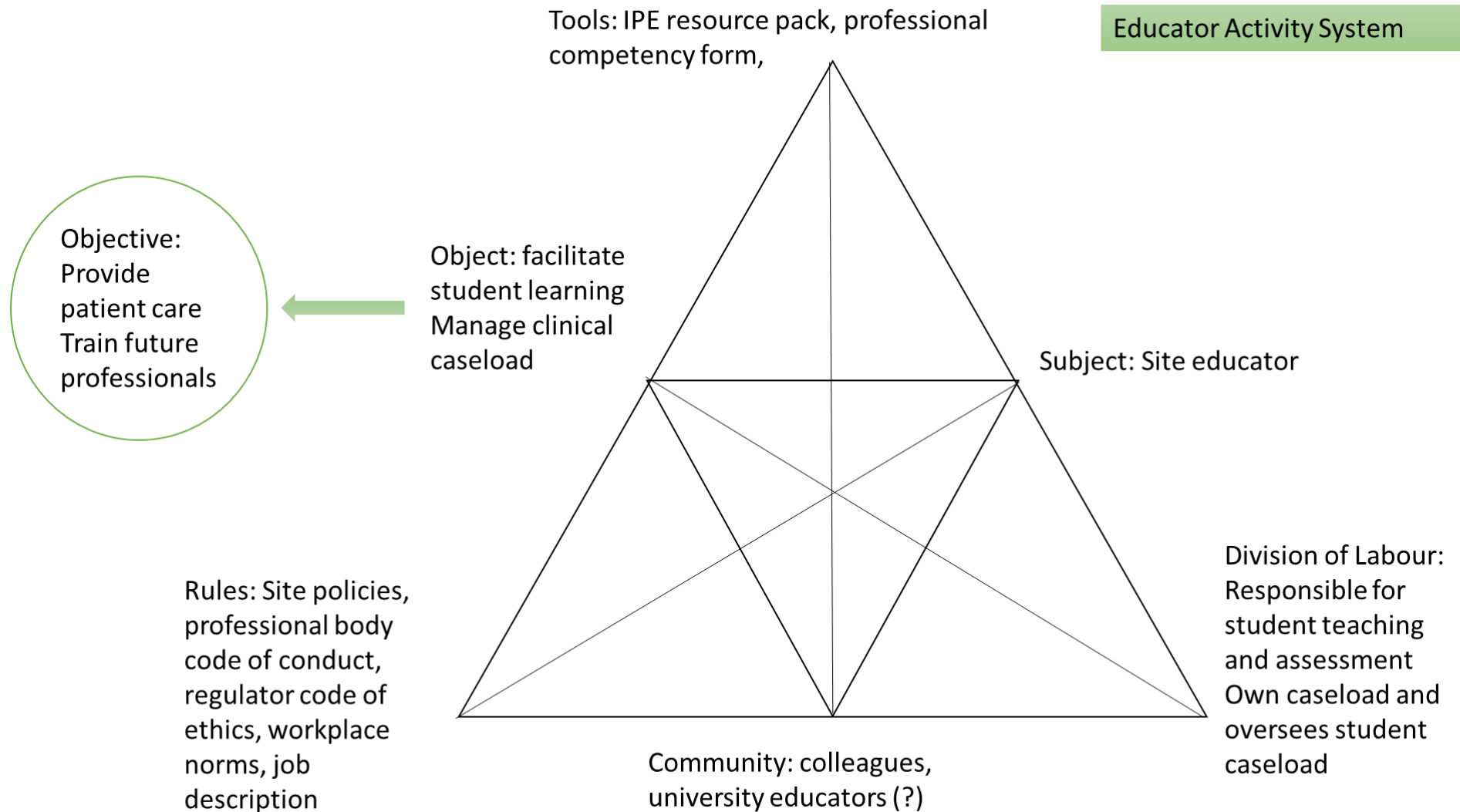
Prologue: I know that lots of people at the School have been involved in planning, supporting, and reflecting on IPE during placement over the last few years. I am interested in hearing about the range of experiences from people who have had different types of involvement.
10. What is your biggest driver for IPE during placement?
11. How would you go about setting up IPE during placement?
12. What would be any / your biggest concerns about IPE during placement? [Of concerns / challenges, would any of them stop you going ahead with IPE during placement?]
13. What tools/ regulations/ guidelines do you use to inform your decisions about IPE during placement?
14. Where does IPP fit within the overall scheme/ demands/ priorities of your work as an _____ [name role]?
15. When you were involved in IPE during placement what did it look like? [in terms of what activities students did / how they interacted with patients / length of time] OR What would IPE during placement look like if you were running it?
16. Reflecting on your experiences of IPE during placement what was the main outcome (positive/negative) for: d) You as an educator e) Students f) Patients

Chapter 6 Appendices

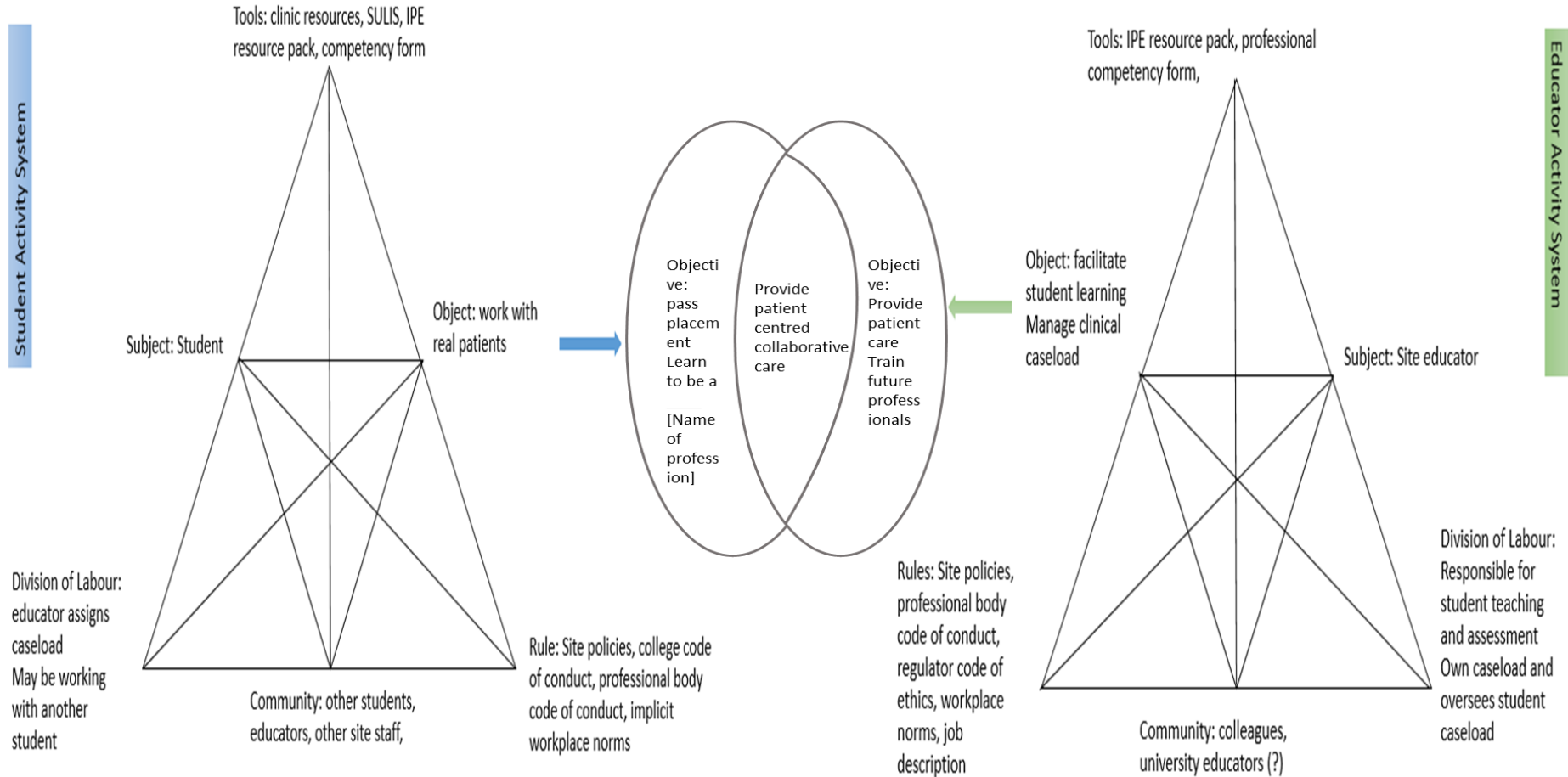
Appendix 1: Activity theory applied

Student Activity System





Interacting student and educator activity system



Appendix 2: Hofstede cultural dimensions

Drawing on large scale international surveys conducted in 1967-1973, 1991 and 2010¹, Hofstede identified six dimensions underpinning national cultures and which can be compared cross culturally². For each dimension, a country is given a score of 0-100, reflecting the national tendency relating to that dimension³. A score below 50 reflects a relatively low score and a score of over 50 reflects a relatively high score on that dimension⁴.

Dimension	Ireland Score	Interpretation for Ireland
Power Distance considers democracy and power distribution within a society.	28	Values a democratic society.
Uncertainty Avoidance considers degree of openness to innovation and desire for structure within a society.	35	Prefers tradition and certainty
Individualism (versus Collectivism) considers the level of integration and dependence between groups in a society.	70	Tends towards individualism
Masculinity (versus Femininity) considers whether a society tends to prioritise achievement or nurturing.	68	Achievement and outcome orientated.
Short Term Orientation (versus Long Term) versus considers attitude to speed of results.	24	Values immediate results
Indulgence (versus Restraint) considers attitude towards enjoying life and desire gratification in a society.	65	Values free time and enjoyment of life

¹ Hofstede, G., Hofstede, G.J. and Minkov, M. (2010) *Cultures and organizations: software of the mind: intercultural cooperation and its importance for survival*, New York: McGraw-Hill.

² Borg, M.A. (2016) 'National cultural dimensions as drivers of inappropriate ambulatory care consumption of antibiotics in Europe and their relevance to awareness campaigns', *The Journal of Antimicrobial Chemotherapy*, 67(3), 763-767.

³ Beugelsdijk, S. and Welzel, C. (2018) 'Dimensions and dynamics of national culture: synthesizing Hofstede with Inglehart', *Journal of Cross-cultural Psychology*, 49(10), 1469-1505.

⁴Bonello, M., Morris, J. and Azzopardi Muscat, N. (2018) 'The role of national culture in shaping health workforce collaboration: Lessons learned from a case study on attitudes to interprofessional education in Malta', *Health Policy*, 122(10), 1063-1069.

Appendix 3: Standards for Reporting Qualitative Research (SRQR)

Title and abstract

Page

Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	182
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	184

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	186-188
Purpose or research question - Purpose of the study and specific objectives or questions	188

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	189
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	190
Context - Setting/site and salient contextual factors; rationale**	189
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	189
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	189
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	189

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	189-190
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	189-190
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	190
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	190
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	190

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	192-193
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	193-199

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	200-203
Limitations - Trustworthiness and limitations of findings	203

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	204
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	204

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Source:

O'Brien, B.C., Harris, I.B., Beckman, T.J., Reed, D.A. and Cook, D.A. (2014) Standards for reporting qualitative research: a synthesis of recommendations. *Academic Medicine*, 89(9), 1245-1251. DOI: 10.1097/ACM.0000000000000388

Appendix 4: Recruitment and Consent Information



UNIVERSITY of LIMERICK
OILESCOIL LUIMNIGH

Participant Information Sheet: Students

Interprofessional Placements in the School of Allied Health at University of Limerick

What is the project about? This project is exploring the process of setting up, conducting, and evaluating IPE during placements at the School of Allied Health. It is a project that is co-designed by myself, my supervisory team, and an Advisory Panel. The Advisory Panel consists of staff and student representatives to make sure that the views of people involved in IPP are represented throughout the research process. We want to better understand how this process works, from the point of view of the people involved in the placements. As a student at the School of Allied Health your perspective on this is very valuable.	
What will I have to do? Attend an individual interview with me, where I will ask questions about IPE during placements. I will audio record the interview for transcription later. I can send you a copy of the transcription and we can review this together. If a greater number of students than the number required are recruited, participants will be selected on a first come first served basis.	
What are the benefits? The findings from this project will increase our understanding of IPP. This may result in enhanced IPP experiences for students involved in future IPPs.	What are the risks? If you have had difficult experiences in relation to interprofessional placements, discussing these experiences in the interview may cause some upset. If this were to happen, we can pause or stop the interview at any point.
What if I do not want to take part? If you do not wish to take part at all you do not need to do anything. Thank you for taking the time to read this information leaflet.	What if I agree to take part and later change my mind? If you decide to take part and later change your mind later this is fine. You can stop taking part in the research study at any time and this is dealt with in a sensitive and confidential manner. You do not need to provide a reason for withdrawing from the research.
Who else is taking part? Staff from School of Allied Health and wider UL community who have been involved in IPP have been involved in earlier phases of the research. This phase involves past and present students only.	

<p>What happens to the information?</p> <p>The information gathered from the study will be handled confidentially. Audio recordings will be transferred from the recording device to an encrypted file on a password protected computer immediately after the interview. Recordings will be deleted from the recording device. Audio recordings will be transcribed by the researcher or a professional transcription service. Transcriptions will be sent to the transcriptionist via a secure server. The transcription company will comply with GDPR and provide a statement of confidentiality. Transcripts will be stored in an encrypted file on a password protected computer. Data will be pseudonymised and real names will not be used in the findings of the research. Pseudonymised data in transcript format will be uploaded to NVivo data management software. Excerpts may be shared with my supervisors and my advisory panel (SAH staff and past student representatives who provide input and feedback on the research process).</p>	<p>What happens at the end of the study?</p> <p>The Advisory Panel and I will develop a plan for how to share findings from this research, such as presenting findings at conferences and seminars. We will also develop written papers based on my findings which will be submitted to a journal for publication. All data in the papers will be pseudonymised. Basic participant details, recordings and pseudonymised data will be held for up to 7 years on a password-protected computer at UL. This is based on the data protection policy of UL. You can read more about this here: https://ulsites.ul.ie/corporatesecretary/data-protection</p>		
<p>What if something goes wrong?</p> <p>If you find the any aspect of the interview uncomfortable or upsetting you can ask me to pause or stop the interview at any time. I will make every effort to ensure your data remains secure and confidential. If there is a data breach, for example, a piece of data is lost, I will follow the UL data protection policy, which you can read more about here: https://ulsites.ul.ie/corporatesecretary/data-breaches</p> <p>What if I have more questions or do not understand something?</p> <p>If you do not understand any aspect of the research or would like more information, please contact myself or any member of the research team. It is important that you feel completely at ease during the research.</p>			
<p>Research Team Contact Details</p> <table border="1"> <tr> <td> <p><u>Researcher</u></p> <p>Noreen O’Leary, School of Allied Health, University of Limerick Email: noreen.oleary@ul.ie</p> </td><td> <p><u>Supervisors</u></p> <p>Dr Nancy Salmon, School of Allied Health, University of Limerick Email: nancy.salmon@ul.ie Dr Amanda Clifford, School of Allied Health, University of Limerick Email: amanda.clifford@ul.ie</p> </td></tr> </table>		<p><u>Researcher</u></p> <p>Noreen O’Leary, School of Allied Health, University of Limerick Email: noreen.oleary@ul.ie</p>	<p><u>Supervisors</u></p> <p>Dr Nancy Salmon, School of Allied Health, University of Limerick Email: nancy.salmon@ul.ie Dr Amanda Clifford, School of Allied Health, University of Limerick Email: amanda.clifford@ul.ie</p>
<p><u>Researcher</u></p> <p>Noreen O’Leary, School of Allied Health, University of Limerick Email: noreen.oleary@ul.ie</p>	<p><u>Supervisors</u></p> <p>Dr Nancy Salmon, School of Allied Health, University of Limerick Email: nancy.salmon@ul.ie Dr Amanda Clifford, School of Allied Health, University of Limerick Email: amanda.clifford@ul.ie</p>		

*This research study has received Ethics approval from the Education and Health Sciences Research
Ethics Committee 2019-09-03*

If you have any concerns about this study and wish to contact someone independent, you may contact:

Chairman Education and Health Sciences Research Ethics Committee

EHS Faculty Office

University of Limerick

Tel (061) 234101

Thank you for taking the time to read this information leaflet.



Student Consent Form

Interprofessional Placements in School of Allied Health at University of Limerick

If you agree to participate in this study please read the statements below and if you agree to them, please sign the consent form.

<ul style="list-style-type: none"> • I have read and understood the participant information sheet. • I understand what the project is about, and what the results will be used for. • I understand that audio files may be shared with a professional transcription service. • I understand that what the researchers find out in this study may be shared with the research supervisors and advisory panel during the process of data analysis but that my name will not be given to anyone and any information relating to me will be pseudonymised. • I understand that what the researchers find out in this study may be shared with others but that my name will not be given to anyone in any written material developed. • I am fully aware of what I will have to do, and of any risks and benefits of the study. • I know that I am choosing to take part in the study and that I can stop taking part in the study at any stage without giving any reason to the researcher. 	<input type="checkbox"/>
Interview This study involves interviews related to interprofessional placement.	
<ul style="list-style-type: none"> • I am aware that the researcher audio-record an interview with me. I understand this interview will be transcribed by the researcher or a professional transcription company. I consent to taking part in this research study. 	<input type="checkbox"/>

Participant name: (please print): _____

Signature: _____

Date: _____

Investigator's signature: _____

Date: _____

Ethical approval: 2019-09-03



Participant Information Sheet: Clinical Educators

Interprofessional Placements in School of Allied Health at University of Limerick

What is the project about? This project is exploring the process of setting up, conducting, and evaluating interprofessional placements at the School of Allied Health. It is a project that is co-designed by myself, my supervisory team, and an Advisory Panel. The Advisory Panel consists of staff and student representatives to make sure that the views of people involved in IPP are represented throughout the research process. We want to better understand how this process works, from the point of view of the people involved in the placements. As an educator of students from the School of Allied Health your perspective on this is very valuable.

What will I have to do? Allow me to observe you during IPP related activities, such as placement planning meetings and/or participate in an interview with me. For activities such as meetings I will be purely observing and will not participate. I can show you an anonymised summary of notes after the activity and we can check that you are happy with what I have recorded and make any changes that are needed. During interviews I will ask you questions related to interprofessional activity during student placements and audio record the interview.

What are the benefits?

The findings from this project will increase our understanding of IPP. This may result in enhanced IPP experiences as you plan, conduct and evaluate future IPPs.

What are the risks?

Some people can find having an observer present uncomfortable or worry it will disrupt the activity. We can agree what you are happy for me to do before beginning the observation. For example, just observe or take part in some parts of the activity.

What if I do not want to take part?

If you do not wish to take part you do not need to do anything. Thank you for taking the time to read this information leaflet.

What if I agree to take part and later change my mind?

If you decide to take part and later change your mind later this is fine. You can stop taking part in the research study at any time and this is dealt with in a sensitive and confidential manner. You do not need to provide a reason for withdrawing from the research.

Who else is taking part?

This research involves students and staff involved in practice education.

<p>What happens to the information?</p> <p>The information gathered from the study will be handled confidentially. Observation notes will be typed following the observation. Handwritten notes will be shredded, and typed notes will be stored in an encrypted file on a password protected computer. Data will be pseudonymised and real names will not be used in observation notes or the findings of the research.</p> <p>Interviews will be recorded using a digital audio recorder. Files will be transferred to a UL password protected computer immediately following interviews and the file deleted from the audio recorder. Interviews will be transcribed either by myself or a professional transcription company. The audio file of interviews will be transferred to the transcriptionist via secure file upload system of the transcription service. The transcriptionist will be asked to provide a statement of how they will maintain confidentiality.</p> <p>Pseudonymised data may be shared with my supervisors and my advisory panel (SAH staff and past student representatives who provide input and feedback on the research process)</p>	<p>What happens at the end of the study?</p> <p>The Advisory Panel and I will develop a plan for how to share findings from this research, such as presenting findings at conferences and seminars. We will also develop written papers based on my findings which will be submitted to a journal for publication. All data in the papers will be anonymised.</p> <p>Basic participant details and pseudonymised data will be held for up to 7 years on a password-protected computer at UL. This is based on the data protection policy of UL. You can read more about this here: https://ulsites.ul.ie/corporatesecretary/data-protection</p>
<p>What if something goes wrong?</p> <p>If you find the process of observation or interview uncomfortable or upsetting you can ask me to stop observing at any time. We can agree on how you would feel comfortable communicating this ahead of the observation.</p> <p>I will make every effort to ensure your data remains secure and confidential. If there is a data breach, for example, a piece of data is lost, I will follow the UL data protection policy, which you can read more about here: https://ulsites.ul.ie/corporatesecretary/data-breaches</p> <p>What if I have more questions or do not understand something?</p> <p>If you do not understand any aspect of the research or would like more information, please contact myself or any member of the research team. It is important that you feel completely at ease during the research.</p>	

Thank you for taking the time to read this information leaflet.

Research Team Contact Details:

<u>Researcher</u> Noreen O’Leary, School of Allied Health, University of Limerick Email: noreen.oleary@ul.ie	<u>Co-researchers</u> Dr Nancy Salmon, School of Allied Health, University of Limerick Email: nancy.salmon@ul.ie Dr Amanda Clifford, School of Allied Health Email: amanda.clifford@ul.ie
<p><i>This research study has received Ethics approval from the HSE Midwestern Regional Hospital Research Ethics Committee [099/19]</i></p> <p><i>If you have any concerns about this study and wish to contact someone independent, you may contact the following:</i></p> <ul style="list-style-type: none">• Chairman Education and Health Sciences Research Ethics Committee, EHS Faculty Office, University of Limerick. Tel (061) 234101• UL Data Protection Officer via: dataprotection@ul.ie. Tel (061) 202887	

Clinical Educator Consent Form



Participant Consent Form

If you agree to participate in this study please read the statements below and if you agree to them, please sign the consent form.

<ul style="list-style-type: none">• I have read and understood the participant information sheet.• I know what the project is about, and what the results will be used for.• I know that what the researchers find out in this study may be shared with the research supervisors and advisory panel during the process of data analysis but that my name will not be given to anyone and any information relating to me will be anonymised,• I know that what the researchers find out in this study may be shared with others but that my name will not be given to anyone in any written material developed.• I am fully aware of what I will have to do, and of any risks and benefits of the study.• I know that I am choosing to take part in the study and that I can stop taking part in the study at any stage without giving any reason to the researcher.	<input type="checkbox"/>
Participant Observations This study involves observation of activities related to IPE during placement. Please tick the appropriate box	
<ul style="list-style-type: none">• I am aware that the researcher will observe IPE related activities and will make field notes that do not include real name and locations. I agree to the researcher making notes about my participation during activities. I know I can withdraw this consent if I change my mind and do not need to provide a reason. I consent to taking part in this research study.	<input type="checkbox"/>
<ul style="list-style-type: none">• I do not agree to the research taking notes on my participation in IPE related activities. I understand that the researcher may be present at such activities for other purposes and that no notes relating to me will be made.	<input type="checkbox"/>
Interview This study involves interviews related to interprofessional placement.	
<ul style="list-style-type: none">• I am aware that the researcher audio-record an interview with me. I understand this interview will be typed up by the researcher or a professional transcription company. I know I can withdraw this consent if I change my mind and do not need to provide a reason. I consent to taking part in this research study.	<input type="checkbox"/>

I agree to the statements above:

Name: (please print): _____

Signature: _____

Date: _____

Researcher's Signature: _____

Date: _____

Ethics Approval Number: 099/19

Appendix 5: Data Collection Tools

Participant Observations

Describe the observation environment in detail		
Describe the participant(s) in detail		
Describe the observation process (for example: flow, depth of participant responses, rapport between observer and participant, change over the course of the observation).		
Think back over the observation. Were there any keywords or phrases used by the participant that struck you in some way? If so, list them here.		
Summarize the key points from this observation in 2-3 paragraphs.		
How does this observation address / go towards answering the research question?		
Describe how this observation connects to the research aims.		
Reflect on your own experience of the observation itself. How did you respond throughout the session? Did you hear pretty much what you expected to hear? If so, explain. Did anything about the participant's experience surprise you or make you feel uncomfortable? If so, explain.		
Activity theory		
Subject	Object	Community
Division of Labour	Rules	Tools

Interview Schedule

Student interview schedule

Introduction: I am interested in hearing about the range of experiences from people such as students who have has experiences of IPE during their placements

Question
1. As a student in a healthcare programme, what does IPE during placement mean to you?
2. Did you have any preparation for working interprofessionally before going on placement?
3. During your placements have you had any experience of working interprofessionally? If so, please describe those experiences. OR: If you haven't had any interprofessional experiences how do you feel about that?
4. What was the most useful learning from your interprofessional experiences? OR What would you hope to learn / gain from IPE during placement
5. What challenges arose when working interprofessionally during placement? OR Can you imagine / foresee any challenges to interprofessional working on placement?
6. How do you feel about interprofessional placements being part of the curriculum for your course?
7. In terms of setting up IPE during placement, what would make for a 'good IPE' for you as a student or for future students? [key student activities, length of time, range of professions]
8. Do you foresee interprofessional placement experiences influencing your future practice [in what ways do you see this changing your practice?]

Thank you for your time and participation in this interview.

Educator interview schedule

Introduction: I know that here in SAH lots of people have been involved in planning, supporting and reflecting on IPE during placement over the last few years. I am interested in hearing about the range of experiences from people who have had different types of involvement.

1. Can you tell me about your own involvement/journey with IPE? [have you been involved in an interprofessional placement, how do you see IPE developing if no involvement to date]
2. What is your biggest driver for IPE?
3. How would you go about setting up IPE during placement? (query overall process, people to liaise with, documentation required)
4. What would be your biggest concerns about IPE during placement? [Of concerns / challenges, would any of them stop you going ahead with an IPP]
5. What strategies do you use to inform your decisions about IPE during placement? (query tools/ regulations/ guidelines)
6. Where does IPE during placement fit within the overall scheme/ demands/ priorities of your work as a _____ [name of role]
7. When you ran an IPP what did it look like? [in terms of what activities students did / how they interacted with patients / length of IPP] a. OR
8. What would an IPP look like if you were running one?
9. Reflecting on your experiences of IPE during placement what was the main outcome (positive/negative) for: a. You as an educator b. Students [capturing student learning] c. Patients

Thank you for your time.

Appendix 6: Data Analysis

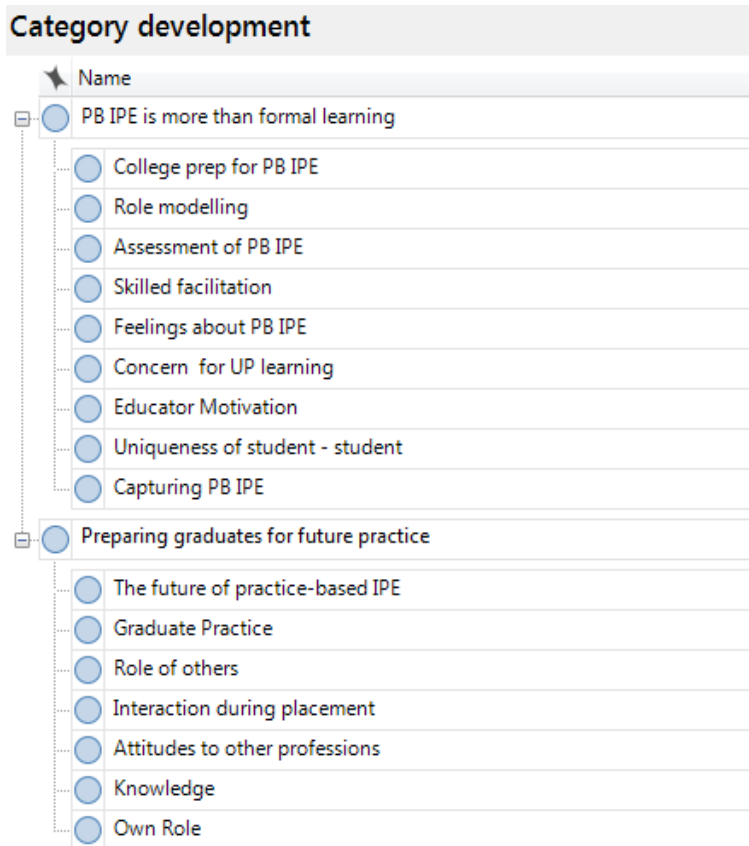
Thematic Analysis

Open coding extract

Open coding			
Name	Files	References	
Capturing PB IPE		1	2
Student outcomes PB IPE		0	0
Graduate practice		8	40
Interaction during placement		6	28
Role of others		8	25
Knowledge		9	18
Own Role		5	13
Facilitator Educator Role		0	0
What students value		3	16
How to facilitate		2	16
IP modelled at clinical sites		0	0
IP working modelled		6	38
Lack of IP working at sites		4	22
Different course structures		0	0
Educator		2	7
Student		3	4
Timing of PB IPE		0	0
Within course		6	13
During placement		6	12

IP: Interprofessionalism; PB: Practice-based

Category Development



PB: Practice-based; UP: Uniprofessional

Framework Analysis

Data summary extract

Hofstede		
A: Individualism vs collectivism		
2: Std_7_Phase 3 Profession = Physiotherap... Role = Student Stage of training = Start	Initial perspective of uniprofessional individualism needing to collaborate to work effectively 'we're all going to be interdependent on each other'	variety of specialties. So once you have any kind of need for specialization, you immediately have a need for various different branches of things, which means that communication becomes absolutely vital. And if you're not somebody who is sort of comfortable with the idea that you're going to have to ask about things, and probably mention things to other people, you know, things that you notice. If you're just in a sort of box of, "This is my label, this is my box, I am going to operate only in here." Then you're going to end up with things that could have been fully preventable that would be to the detriment of your patient simply because you didn't have that integrated approach.
	People focusing only on own role and silo	Speaker 2: Okay.
	'This is my label, this is my box, I am going to operate only in here'	Speaker 1: Because everybody's only looking after what their specific thing is. You can build cars that way. You can't build people.
	'coordination is vital because, otherwise you've people slipping through the cracks'	Speaker 2: Good way of looking at it. Speaker 1: It's just stuff. The communication. You really need a very integrated approach, because if not you're not going to be all working together towards a common goal or you're going to end up under each other's feet. And I think that's true with any kind of complex product, whether it's an actual person or whether it is anything else that you're actually building. It's just, you will get in each other's way if you're not on each other's side as it were. Sounds like I read it off a poster somewhere.

General Appendix: Copyright permissions for paper 1-5

Paper 1



Thank you for your order!

Dear Ms. Noreen Oleary,

Thank you for placing your order through Copyright Clearance Center's RightsLink® service.

Order Summary

Licensee:	Ms. Noreen Oleary
Order Date:	Mar 22, 2021
Order Number:	5034261129485
Publication:	Medical Education
Title:	'Bumping along': a qualitative metasynthesis of challenges to interprofessional placements
Type of Use:	Dissertation/Thesis
Order Total:	0.00 EUR

Papers 2 and 3

RE: Permission for including papers in PhD thesis



permissionrequest@tandf.co.uk
To: Noreen.O'Leary

[↩ Reply](#) [↩ Reply All](#) [→ Forward](#)

Tue 23/03/202

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